The New England
Journal of Medicine

VOLUME 207 DECEMBER 1, 1932 NUMBER 22

EXPERIENCES WITH ENCEPHALOGRAPHY*

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THE addition of a test which visualizes the size and position of the ventricular system and cortical cerebrospinal pathways has greatly improved our ability to appraise more accurately many neurological conditions. Ventriculography, the original method used, was developed largely for the more accurate localization of tumors within the skull. It entails a surgical operation and its use has, therefore, remained somewhat restricted. Encephalography, on the other hand, is a test which may be performed by anyone competent to perform lumbar puncture and, if properly safeguarded, holds little if any risk to the patient and entails but a short period of discomfort. It consists in the replacement of cerebrospinal fluid by air via a spinal puncture needle in the lumbar region. The chief risk lies in the temporary increase in intracranial pressure caused by the irritant effects of the air as well as by the shift in normal pressure relationships. Its use should be confined to patients in whom the intracranial tension is felt to be normal. We also feel strongly that its use should be condemned in cases with large tumors even if the pressure is thought to be normal, since the shift in tension may start sudden bleeding or a dangerous amount of air may become trapped in a dislocated ventricle. But even with these restrictions the test has wide application and we believe that it should be performed more largely in the thorough study of many confusing neurological conditions. The enormous numbers of idiopathic epilepsies deserve this study, since an occasional remediable situation may be depicted. In cases of chronic or healed inflammation and in patients with bizarre complaints following trauma this procedure may demonstrate interruption in the normal cerebrospinal circulation to which surgery may bring relief. It is our hope that the recital of some of our experiences may direct others to a more liberal use of the test in selected cases.

TECHNIQUE

The actual technique of encephalography varies in different clinics. The procedure which we have finally adopted after trying several methods is quite simple. The evening before encephalography is to be carried out 0.1 gm. of pentobarbital is given at bedtime to insure the patient a good restful night. Breakfast is withheld because these patients frequently become quite nauseated at some time during the procedure. If the air is to be injected at 9:00 a. m. the patient receives 0.2 gm. of pentobarbital at 7:00 a. m. and another 0.2 gm. at 8:00 a. m. A smaller dose may be given depending upon the size and age of the patient. We have found pentobarbital more effective in preventing and relieving the discomfort which accompanies encephalography than opiates and hyoscine. Usually 4 cc. of aromatic spirits of ammonia in water is given before the injection of air. The patient is urged to inhale the aromatic spirits of ammonia during the injection period and while the roentgenograms are being taken. During the procedure the pulse and respiration are checked frequently. These readings and a record of the blood pressure are continued for several hours or until the patient has safely recovered.

The lumbar puncture is usually done on the wards or in the patient's room*. If it is necessary to obtain a reading of the cerebrospinal fluid pressure to insure the advisability of this procedure, the spinal tap is done with the patient in the horizontal position; otherwise, the patient is placed on his side in a semi-sitting position or on the edge of the bed with the head supported. We do not think it is necessary to use more than one needle for the procedure. Under local anesthesia a medium-sized lumbar puncture needle is inserted into the third or fourth lumbar interspace and pressure readings are taken if desired. A flexible rubber tube about six inches long with appropriate connections is attached to the lumbar puncture needle and to a 5 cc. syringe. To prevent leakage of air from the system, the connections and the barrel of the syringe are covered with sterile vaseline.

To allow for subsequent expansion of the air, about 10 cc. of cerebrospinal fluid is slowly removed before air is injected. The syringe is filled with atmospheric air. We do not think that it is necessary to filter the air through gauze or cotton as is frequently recommended. The air is very slowly injected. The syringe is

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*Increasing experience and the desire to have these cases under more personal control has led us to perform as a rule lumbar puncture and the insufflation of air in one of the small operating rooms on the operating room floor.

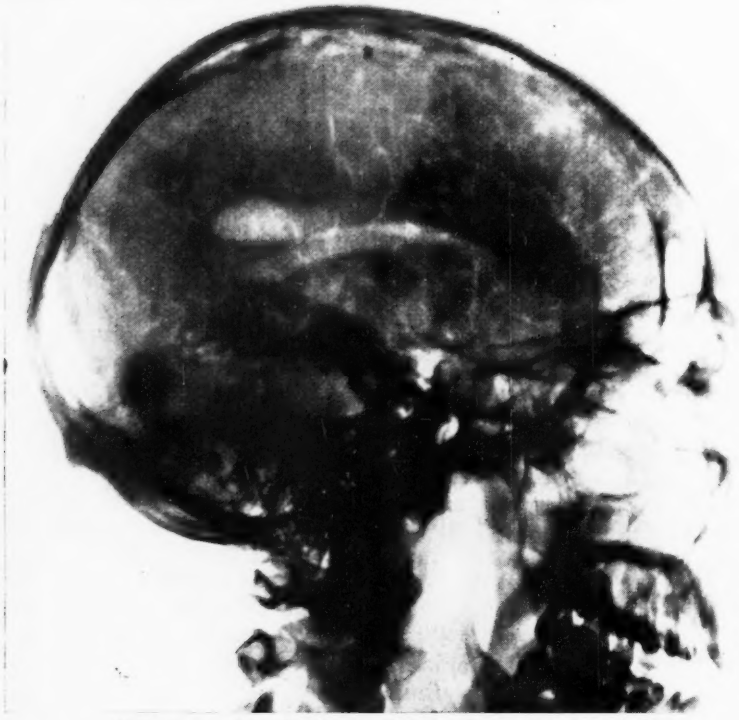

FIG. 1 A. Encephalogram showing distortion of posterior portion of right ventricle with outward displacement.

FIG. 1 B. Lateral view showing posterior portion of the right ventricle pulled upward as the result of gliosis from abscess in the right occipital region nine years previously.

then slowly filled with cerebrospinal fluid. Usually it will fill under its own pressure, and sucking out of the cerebrospinal fluid is condemned. The flexible tube is then compressed between the thumb and first finger and the syringe removed. This avoids the use of a stopcock and simplifies the procedure. About the same length of time should be consumed in injecting the 5 cc. of air as has been taken for the syringe to fill with cerebrospinal fluid. During the injection of the air the position of the head is frequently changed to facilitate the emptying of the cerebrospinal spaces and the equal distribution of the air. The patient usually complains of discomfort in the frontal region or back of the neck with the injection of 5 to 15 cc. of air. We do not think it is necessary to drain the cerebrospinal space completely in an attempt to visualize the entire ventricular system. The replacement of fluid by air is continued until 70 to 90 cc. of air has been injected. In cases of marked hydrocephalus it may be necessary to inject more than 90 cc. of air. Usually it is satisfactory, and it is certainly much easier and safer for the patient and the reactions are much less severe, if no more than 70 to 80 cc. of air is injected. After the injection the patient is sent to the x-ray department in a wheel chair, accompanied by a doctor and nurse. During this time the patient's head is maintained erect to insure an equal distribution of the air in the two sides.

An anteroposterior view is first taken with the head held firm by means of a binder attached to the Potter-Bucky vertical diaphragm. This plate is then developed and, if it is satisfactory, three additional roentgenograms are made. If no air can be visualized in the first roentgenogram, the expense of further exposures is eliminated. The three additional positions that we consider necessary for diagnostic purposes are posteroanterior and a right and left lateral. The taking of stereoscopic views from four sides of the head in both the vertical and horizontal positions[1] does not seem necessary for diagnosis and entails additional expense besides exposing the patient to an approximate erythema dose which in the case of

FIG. 2. Collection of air over left hemisphere at site of old intracranial injury and fracture.

an unsuspected tumor might cause an undesirable reaction. In those cases in which the encephalograms are suggestive of, but do not clearly demonstrate, a pathological process, additional roentgenograms are taken with the head in other positions. The physical factors used in making the roentgenograms are the following:

FIG. 3. Encephalogram in patient with osteomyelitis of skull and suspected brain abscess showing displacement of both ventricles to the right.

For Anteroposterior and Posteroanterior Views	*For Lateral Views*
Tube 30 milliamperes	Tube 30 milliamperes
Kilovolt peak 68	Kilovolt peak 61
Milliamperes 30	Milliamperes 30
Time 5 seconds	Time 5 seconds
Distance from target to film 25 in.	Distance target to film 25 in.
Potter-Bucky diaphragm	Potter-Bucky diaphragm
Intensifying screen	Intensifying screens

MATERIAL STUDIED

We have restricted encephalography to conditions in which not only is there no increase in the intracranial pressure but in which sizable tumors are not suspected. There are many vague neurological conditions in which the evidence that encephalography may give is of assistance in reaching a thorough understanding of the complaints. These cases can be arranged in five groups: epilepsy, posttraumatic neurosis, brain tumor suspects, sequelae of infection, and miscellaneous.

One of the chief uses of encephalography has been in the study of the convulsive states. This procedure affords a method whereby obliteration or distortion of the ventricles and the corticocerebrospinal pathways can be demonstrated and the focal cause of epilepsy localized. Various findings have been reported from encephalographic studies in idiopathic epilepsy. In some cases, the subarachnoid spaces have been dilated allowing accumulations of air over the cortex. The ventricles may be dilated and asymmetrical[2]. Notkin[3] carried out encephalography in 17 cases of idiopathic epilepsy in which there was no clinical manifestation of a focal lesion. In eight of these patients nothing unusual was found in the encephalograms. The ventricles and subarachnoid spaces were dilated in four cases and in the remaining five the observations indicated a definite pathological process. Recently we have carried out encephalography in nine patients with epilepsy whose

average age was 25 years. Findings were normal except in one case. In some of these cases the attacks were much less severe following encephalography and several have not had a recurrence up to the present time.

In one patient, a 26 year old white laborer, displacement of the posterior horn of the right ventricle was found in the encephalogram (fig. 1). This patient had had repeated epileptiform attacks involving chiefly the left leg and arm with occasional flashes of light, always appearing in the left fields of vision. These attacks had followed a prolonged period of hospitalization nine years previously in which the patient had frontal sinusitis and purulent mastoiditis. This was apparently followed by an abscess of the brain adjacent to the right mastoid with an associated meningitis. By encephalography we were able to show distortion of the posterior portion of the right ventricle with displacement toward the area involved. These findings were interpreted to mean that the resulting scar tissue in the right occipital region had pulled the ventricles outward and upward as explained in the works of Penfield[4] and of Penfield and Buckley[5]. At operation the whole surface of the right occipitoparietal area was covered with intimate adhesions between the dura and pia arachnoid. In the upper occipital region the large ventricle seen in the encephalogram was needled and the overlying cortex was found to be only 1 cm. in thickness, apparently the seat of extensive gliosis. Immediately above the knee of the great sinus just at the roof of the temporal bone overlying the internal ear the brain was adherent to the dura and at this point very large and multiple veins came out of the sinus and entered the cortex. At this point of adhesion, after all vessels had been carefully clipped, the attachment was divided in order to remove the tug on the brain, so often the instigation of epileptic seizures. Definite improvement has resulted. The patient is now working and has not had a recurrence of convulsive attacks.

FIG. 4 A. Encephalogram taken as a check five years after suboccipital decompression for marked increase in intracranial pressure. A diagnosis of chronic arachnoiditis was made. The patient remains well at the present time.

The injection of air into the subarachnoid

spaces in cases of posttraumatic neuroses has been advocated by Penfield[6] as a valuable therapeutic agent. We have performed encephalography on 11 patients whose symptoms were the result of posttraumatic sequelae. Five patients had fracture of the skull and were unconscious for a period of time. The average age of this group was 34 years. Follow-up studies indicate that about half of these were improved following this procedure. In only one encephalogram was there definite suggestion of pathological change. This patient was a 37 year old truck driver who had a basal skull fracture two years previously. His complaints were headaches, both frontal and occipital and throbbing in character, buzzing in the left ear and more recently pain in the left parietal region. Encephalography showed some depression of the left posterior horn with definite collection of air over the left parietal region (fig. 2). At operation it was found that the dura in the region of the Sylvian fissure was thickened and that the pia arachnoid was opalescent, tough and greatly thickened like the organization that follows old hemorrhage. It appeared that the sensory manifestations were connected with the organization in the pia arachnoid and accordingly a decompression was done. The patient has been able to return to work and is symptom-free.

Encephalography has been of value in the localization and diagnosis of various inflammatory processes. We have successfully used this procedure as an aid in the localization of an abscess of the brain (fig. 3). An abscess of the brain in itself is not thought to be a contraindication and in the absence of meningitis the injection of air may be used with safety as an aid in the localization. We attempted encephalography in one case of tuberculous meningitis, but adhesions about the medulla prevented the air from rising above this point. A ventriculogram showed large dilated ventricles.

We have recently found encephalography of value as a check on the previous treatment of intracranial conditions. Encephalograms were

FIG. 4 B. Check-up encephalogram showing normal ventricles five and one-half years after suboccipital decompression for chronic arachnoiditis. At that time had evidence of marked intracranial pressure. Symptom-free at present.

made of three patients on whom a suboccipital decompression had been done five or more years previously for chronic arachnoiditis (fig. 4). When first seen these patients showed evidence of high increased intracranial pressure and symptoms suggesting posterior fossa disease. At the present time these patients are in excellent health and do not show increased intracranial pressure by examination of the fundi or by lumbar puncture. In one case there was some uniform dilatation of the ventricles (fig. 4 C). These cases are being reported in detail in another communication[7]. The finding of normal ventricles five years after the former operation gives weighty evidence that the initial complaint resulted from arachnoiditis and not tumor. These patients should be treated as tumor suspects until sufficient time has elapsed without localizing neurological symptoms and with negative findings by encephalography.

A large group of patients classed as brain tumor suspects with little evidence of increased intracranial pressure should be subjected to encephalography in an effort to reveal the presence or localization of a tumor. However, we had one fatality in this group. This was a case of a 65 year old white woman who began developing weakness in the left lower extremity six weeks before admission. The weakness spread to the left upper extremity and by the time of entrance to the hospital had developed to a nearly complete paralysis. There were no symptoms of cranial nerve involvement and no disturbance of consciousness or speech. There was no evidence of pressure either in the eyegrounds or in the cerebrospinal fluid manometer reading. After encephalography the patient had considerable headache but returned from the x-ray department to her room in good condition. About two hours after the injection of air she suddenly stopped breathing and could not be resuscitated. The encephalograms (fig. 5) showed the superior portion of the right anterior horn incompletely filled, and the posterior portion of the horn dilated. In the lateral view what appeared to be a mass was projecting

FIG. 4 C. Encephalogram showing moderate uniform dilatation of ventricles six years after suboccipital decompression for chronic arachnoiditis. This patient entered the hospital blind but vision has returned and no neurological symptoms are present.

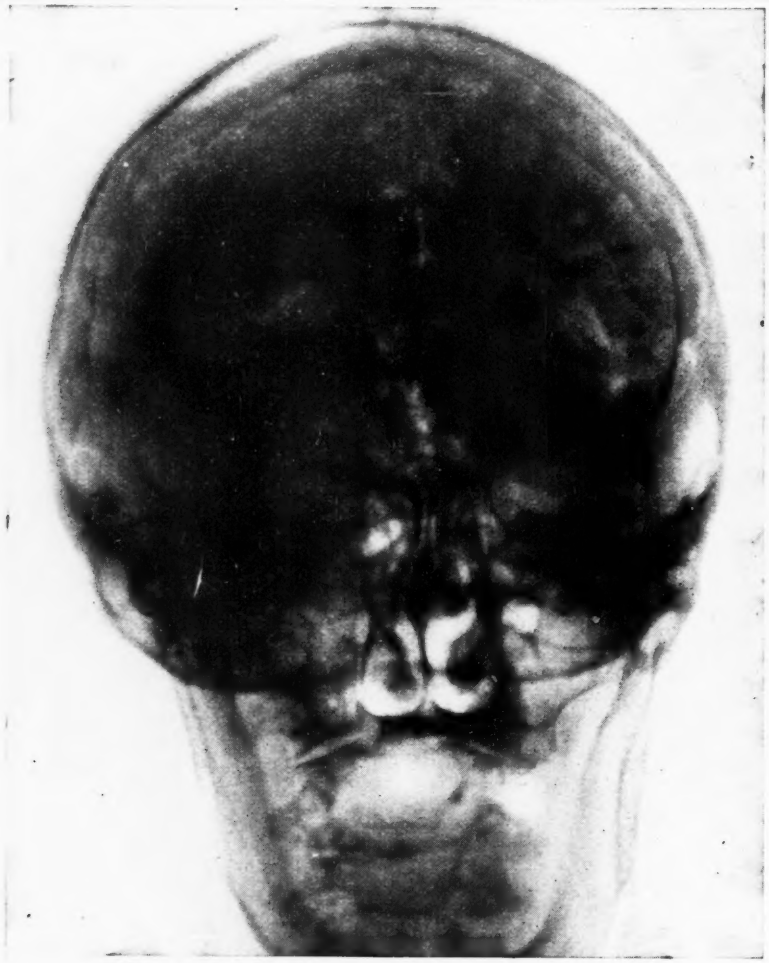

FIG. 5 A. Encephalogram showing distortion of the right ventricle. This patient died two hours after the procedure. There was no clinical evidence of increased intracranial pressure. The findings in the encephalograms were consistent with the clinical diagnosis of extensive tumor of the right hemisphere.

FIG. 5 B. Lateral view in the same case showing obliteration of the mid portion of the right ventricle by encroachment of a large tumor.

down into the midportion of the right ventricle. However, another patient with a very large tumor underwent encephalography without serious difficulty (fig. 6). In another case encephalography had shown moderate dilatation of the ventricles without displacement. A cerebellar tumor was found at operation.

The remainder of our cases can be classed as miscellaneous. In these the procedure was carried out in patients suffering from vague neurological symptoms in the hope of finding focal pathology which might be amenable to surgical intervention. We believe that encephalography should be used in children suffering from birth injuries and those that are defective mentally. This is done in an effort to give a more accurate prognosis. The procedure can also be used as a check-up on the treatment instituted in such cases.

These experiences with patients with epilepsy, posttraumatic headache, chronic inflammatory disease (arachnoiditis), and tumors indicate that encephalography is a valuable aid in the study of such neurological conditions.

FIG. 6. Marked displacement of ventricles with dilatation of left ventricle as result of very large glioma in right frontal region. The patient was not disturbed by the procedure.

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ECONOMICS OF THE MASSACHUSETTS CANCER PROGRAM*

BY GEORGE H. BIGELOW, M.D.,† AND HERBERT L. LOMBARD, M.D.†

THE Cancer Program of the Massachusetts Department of Public Health costs approximately $300,000 per year. In these days of depression, with every incentive for strict economy, it seems advisable to attempt a measurement of this service. The humanitarian will immediately cry, "There should be no business principles where suffering is concerned." The economist, on the other hand, desires factual information and must be shown whether this large outlay of money is a necessary part of the State expenditures.

The service to cancer patients includes care for the dying, alleviation for those who cannot be cured but are still able to be returned to their communities to perform their duties for some months, and an early diagnosis for individuals in the primary stage of the disease at which time cures are more readily obtained. From an economic standpoint, service to the dying is of only small value and difficult to measure, although it is true that in some cases it releases workers of the communities in so far as they do not have to care for the ill.

Alleviation offers some economic recompense, as many individuals completely disabled are able to resume at least part of their normal activities after some months at the cancer hospital. Both alleviation and terminal care offer far more from an humanitarian point of view than from an economic one. If our cancer service were limited to these two activities, the economist might well claim it to be unsound, although he would readily admit the humanitarian aspects. He would, however, raise the question whether governmental money should be used for the humanities or if it were not better that such service be furnished by private philanthropy. Early recognition, combined with social follow-up to insure that patients receive the needed treatment, removes the cancer program from the humanitarian field to the economic.

If we limit our discussion to economics, an analogy can be made between the cancer program and business.

The State cancer program does not differ greatly from business. The profits of business are in dividends. The profits of a program for the early diagnosis and treatment of cancer are in the economic value of the salvaged individuals. Dublin‡ estimate that the net value of a wage earner at age sixty ranges from $2,450 in the lower economic levels to over $20,000 in the upper. The median age of the cancer patient is about sixty-one years. Let us assume that the value of the average wage earner at this age is about $4,000. As the majority of women with cancer are not wage earners, it is difficult to set an arbitrary figure as to their economic value. However, as housewives, they perform a duty which in replacement value is by no means inconsiderable. Let us assume the figure to be $2,000 and consider the average of all individuals at cancer age to be $3,000. This seems conservative. With this assumption the net value of patients that can be cured of cancer in Massachusetts if our present knowledge and resources are used to the best advantage is slightly in excess of $3,600,000 per year.

The expectation of life of an individual in Massachusetts at age sixty-one is 13.8 years. The expectation of life of an individual with cancer at age sixty-one who has no treatment and therefore stands no chance of cure is 1.4 years. The expectation of life of all cancer patients in Massachusetts at age sixty-one including those who were cured and those who were not is 3.3 years, while the expectation of life of cancer patients at age sixty-one with the maximum possible cures is 6.3 years. With the present form of treatment, and with the present delay in seeking treatment, the average cancer case is living 1.9 years longer than he would if nothing had been done. With maximum treatment three years additional life would be obtained. The figures indicate that about 15 per cent of all cancer cases are now being cured while there is a possibility of curing an additional 11 per cent. The maximum cures would represent nearly 1300 people per year, an economic gain of over $3,600,000. However, it is not fair to credit the State cancer program with this total amount. For many years physicians, surgeons, and research workers have devoted their lives to the cause of cancer. The results are shown in the lives now saved, an item of over $2,000,000. The activities of the cancer program are intended primarily to bring to the general public existing knowledge and to get them to apply this. If we then limit the achievements of this program to this phase, there is a possibility that we may accomplish a yearly saving of life valued at over $1,500,000. As our service is in reality more extensive than this, this figure is conservative and one that may be accomplished within a reasonably short time.

Delay is the greatest single factor to be attacked. If delay is reduced to a minimum and the service is adequate, the desired results will be accomplished. In the accessible types of cancer in which most of the cures are obtained,

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‡ "The Value of Man as a Wage Earner." Statistical Bulletin Metropolitan Life Insurance Co., Vol. VII, No. 6, June, 1926.

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the delay of patients coming to the cancer clinics has been reduced in the last five years at the rate of one-half month per year. The figures for 1931 indicate that more cures have already been obtained but as a five-year interval is needed in measuring cures, this is impossible to prove at the present time. In the "Cured Cancer Clinic" of last winter, when the hospital had been in operation only some four years, the Pondville Hospital showed twenty-one of the many cases that have remained well three years after operation. While this from a statistical point means little, it is an indication of what is being done.

The State cares for only a small percentage of the cancer population, but the influence of its educational activity is far-reaching. While there are no comparable figures to indicate a decrease in delay in patients coming to doctors' offices, it is reasonable to assume that a similar situation exists, and the opinion of many physicians questioned supports this conclusion.

It is difficult to measure the present worth of the cancer clinics as the time element is so important, but with a future saving of $1,500,000 per year, it seems reasonable to attribute to the State program at least a fourth of this saving per year at the present time and with that assumption we make our comparison with business.

inform both physicians and the public of the cancer facilities and the value of early adequate diagnosis.

There is a very close interplay between these various types of activity. The clinics and hospital are essential in a program of diagnostic service and treatment for the large number of individuals who would not otherwise seek them. Acting as demonstrations, they stimulate cancer-mindedness throughout the State. The hospital, moreover, creates a feeling of hopefulness among individuals and agencies as the existence of adequate resources always does.

The clinics supply the hospital with many of the early cases—cases which can be cured. The hospital cares for the incurable case, the case that can be benefited and return into the world to continue his occupation for a number of months, and the early case in which cure is possible.

Social service facilitates the carrying out of the clinic doctors' recommendations, removes fear and prejudice on the part of the patient, and brings patients to treatment who otherwise would not receive it. Social service is given both at the hospital and at the clinics and has been classified under service.

Without the educational work the clinics would be utilized to only a small extent. In communities where the educational work has been of a very small degree the clinic attendance has likewise been small. There is a close relationship between the amount of education and the clinic attendance. It is believed that the same relationship exists between education and attendance at the physicians' offices. Without constantly repeating the necessary information the public ceases to be on the alert for the danger symptoms of cancer.

The statistical work is of benefit to the clinics, the social service, the hospital, and the educational activities. Factual measurements of results are obtained through the study of the clinic records. Differences between clinics are studied and methods used in one which are found favorable can be applied to others. The interpretation of the cancer program has largely been through the studies of clinics, hospitals, and patients. It is important to know whether

EXPENDITURES BY PERCENTAGE

	Service	Administration	Advertising Education	Profits
Massachusetts Cancer Program—1931	83.0	10.0	7.0	25.0+
*Drug Chain—1929	66.8	31.5	1.7	1.1
*New York Newspaper—Large Circulation—1926	85.7	6.6	7.7	10.0
*Newspaper—Small Circulation—1926	78.2	16.6	5.2	3.2
*Shoe Chain—1929	67.0	29.8	3.2	0.8
*Department Store—1927	68.5	28.5	3.0	0.1
*Grocery Chain—1929	81.5	17.7	0.8	1.2
*Jewelry Chain—1927	57.4	40.0	2.6	2.6

*Percentages computed from the Publications of the Graduate School of Business Administration, George F. Baker Foundation, Harvard University.

The table shows a comparison of expenditures by percentage in the Massachusetts state program with other lines of business. The figures indicate a very favorable position for the Massachusetts cancer program. While the amount spent for education is larger than for most of the advertising budgets, the item for administration is smaller and the percentage of money spent for service is second only to that of a large New York newspaper. The profits, on the other hand, far exceed these, and from an economic standpoint it would appear extremely sound.

In the above tabulation, service includes the State expenditures for the State diagnostic clinics and the care of patients at the Pondville Hospital. Administration includes the administration of the clinics, of the hospital, and the statistical work done in connection with both. Education includes the various methods used to

a given dollar is properly spent and this can only be done by careful estimation of results. The social service records are subject to statistical interpretation and faults which are found can be corrected. Without them it would be difficult to interpret the work which may be helpful to other communities, in initiating work in cancer service.

Examples of the interplay between statistics, education, and the eradication of cancer are as follows:

Statistics show that women torn at childbirth have more cancer than others. Education attempts to have all tears repaired.

Statistics show that tobacco users with unclean mouths have more cancer than others. Education attempts to have all tobacco users go to their dentists several times a year.

Statistics show that there is more cancer among the poor than among the rich. Education is devoting especial attention to low economic groups.

Statistics show that there is more cancer among the foreign born. Education is arranging meetings in the various mother tongues and distributing literature written in the same tongues.

Statistics show that 75 per cent of the breast cancer cases can be cured, but only 20 per cent are being cured. Education then stresses breast cancer.

Statistics show that some doctors are lax in early cancer diagnosis. Special clinics are given to rectify this.

Statistics show the reason why people delay. Social service and education, knowing these reasons, can act accordingly.

Statistics show that one type of treatment costs more than another, both being equally good. Administration chooses the lower-priced one.

The Department is endeavoring to work from a factual standpoint. Money spent inefficiently is thrown away. Service is offered to cancer patients in the form of diagnosis at the clinics, treatment at the hospital, and social service in clinics, hospital, and home. Education is active in all communities in the State. The evaluation of these services is constantly being made and any endeavor which proves to be futile is abandoned, while the more constructive ones are continued or modified. A service which from a humane point of view is caring for many who could not otherwise be cared for, which from an economic point of view is increasing the number of lives saved by reducing the interim between symptoms and treatment and steering the patient to adequate treatment, is certainly worth while. The research laboratories may eventually discover a cause for cancer, but until this is accomplished a state program such as is described here, working in close coöperation with the medical profession can reduce suffering and prevent a large number of individuals from dying of cancer.

CHRONIC PROGRESSIVE CHOREA*

(Huntington's Disease)

BY SIMON STONE, M.D.†

HUNTINGTON'S disease is a chronic, familial and hereditary affliction, coming on usually in adult life. It is manifested by numerous irregular choreiform movements, is associated with progressive mental deterioration, and finally terminates in death. The first description of a disease similar to the one described by Huntington in 1876 appeared in the form of a letter from C. O. Waters of Franklin, New York, published in the third edition of Dunglison's "Practice of Medicine," in 1842. Waters mentions in his letter an affliction that was common amongst certain families in New York State, nicknamed "megrims", and which manifested itself by a spasmodic action of all, or nearly all, voluntary muscles of the body, and of involuntary and more or less irregular motion of face and trunk. He also mentions the fact that it began in adult life, that it was transmitted from parent to offspring, and that it was incurable.

In 1863 Irving W. Lyons described, apparently, the same disease in an article in the *American Medical Times*. He also remarked that the hereditary transmission of the disease was well known in the community and as a result of marriage alliances with members of choreic families was strongly interdicted under the penalty of social ostracism. He also reported one case in which four generations were afflicted, and though one member of the family was non-choreic himself, he was the father of two children in whom chorea had existed for years. Only a few cases of a similar nature have been reported in the literature so far.

Not much attention was paid to the two previous reports until in 1872 George Huntington, in a postscript to what Osler describes as "an everyday article on chorea minor" gave an excellent description of the disease, which since has been named after him. For those who have

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never read Huntington's original description, a partial reprint of a really dramatic account of a new disease entity is offered here.

"There are three marked peculiarities in this disease: 1. Its hereditary nature. 2. A tendency to insanity and suicide. 3. Its manifesting itself as a grave disease only in adult life.

"1. Of its hereditary nature. When either or both of the parents have shown manifestations of the disease and more especially when these manifestations have been of a serious nature, one or more of the offspring almost invariably suffer from this disease if they live to adult age, but if by any chance the children go through life without it, the thread is broken and the grandchildren and great-grandchildren of the original shakers may rest assured that they are free from this disease. Unstable and whimsical as the disease may be in other respects, in this it is firm: it never skips a generation to manifest itself in another; once having yielded its claims, it never regains them.

"In all the families, or nearly all, in which the choreic taint exists, the nervous temperament greatly preponderates, and in my grandfather's and father's experience, which conjointly cover a period of 87 years, nervous excitement in a marked degree invariably attends upon any disease these people may suffer from, although they may not when in health be over-nervous.

"2. The tendency to insanity, and sometimes that form of insanity which leads to suicide, is marked. I know of several instances of suicide of people suffering from this form of chorea, or who belong to families in which the disease existed. As the disease progresses, the mind becomes more or less impaired, in many amounting to insanity, while in others mind and body both generally fail till death relieved them from their sufferings.

"3. Its third peculiarity is its coming on as a grave disease only in adult life. I do not know of a single case that has shown any marked signs of chorea before the age of 30 or 40 years, while those that pass their 40th year without the symptoms of the disease are seldom attacked. It begins as an ordinary chorea might begin, by the irregular and spasmodic action of certain muscles as of face or arms. These movements gradually increase, while muscles hitherto unaffected take on the spasmodic action, until every muscle of the body becomes affected (excepting the involuntary ones) and the poor patient presents a spectacle which is anything but pleasing to witness. I have never known a recovery or even an amelioration of symptoms in this form of chorea; when it begins it clings to the bitter end. No treatment seems to be of any avail, and indeed, nowadays it is so well known to the sufferer and his friends that medical advice is seldom sought. It seems at least to be one of the incurables."

Huntington's article provoked considerable interest in this disease, and a report of a great number of cases has appeared in medical literature following his original description. Davenport succeeded in tracing the origin of the disease in the United States back to the seventeenth century when about half a dozen individuals (three probably brothers) migrated to America and settled in the New Haven colony in Fairfield, Conn. The different descendants of the original choreics at first spread over Connecticut, Massachusetts, Rhode Island, and New York, but later cases were reported from all over the country and as far west as California.

By 1909 about 4300 descendants of the original choreics were tabulated and studied by Davenport and Muncie, with interesting results. Because of intermarriage with normal individuals, a number of biotypes have arisen showing some modification of the cardinal symptoms described by Huntington.

Davenport in his studies was able to classify the following biotypes:

1. A type in which tremors are present and no mental deterioration.
2. Tremors absent and mental deterioration present.
3. Non-progressive chorea.
4. Chorea beginning in early life instead of adult age.
5. Mental symptoms preceding by years the onset of choreiform movements.

The symptomatology not only varies in different families, but also in members of the same family, as to the age of the onset of the symptoms, the degree of mental deterioration, the precedence of mental over physical changes, and the progression of the disease. The nervous stability of the non-choreic partner must be taken into consideration because the severity of symptoms in the offspring will somewhat depend also on his or her nervous stability. If the non-choreic partner is nervous or emotionally unstable, the chances are that the symptoms in the offspring are going to appear at a much earlier age, and will be of much greater severity. Huntington's impressions of nervous instability amongst the unaffected members of choreic families were later verified by Davenport, who in a field study amongst over 3000 relatives of 962 choreic descendants of the original families, described the occurrence of the following disorders of the nervous system; epilepsy 39 times, infantile convulsions 19 times, meningitis 51 times, hydrocephalus 41 times, feeble-mindedness 71 times, and ties 9 times.

In our first family, out of a total of 129 descendants, a history of alcoholism was obtained in seven cases, shiftlessness and failure of adjustment in 3 cases. Three suffered from asthma, which was also given as the cause of their death, besides the nine members that suffered from

chorea. In the second family only the New Hampshire branch, consisting of eighteen members, was thoroughly investigated. Of the 18, two have died of chorea, four are being treated at the present time for the same disease, two non-choreic members have died of shock, and one of the two was quite addicted to drinking. In the last generation, although the members are still young, the oldest being twenty years at present, five out of seven already display numerous nervous manifestations, and it is felt by the family that several of them will develop the disease after they reach adult age. In the entire family, out of 89 members, 14 were known to have definitely suffered from chorea.

That alcoholism is a frequent occurrence amongst choreic families is corroborated by Hattie, who stated that he has been informed that intemperance in alcohol characterizes so many members of the family that it is a lay belief that the disease is a result of alcoholism. He also noted that many of the descendants he knew are of a somewhat inferior type, lacking in ambition and vitality. This may be a coincidence only, but tuberculosis was given as a frequent cause of death in the non-choreic members in our families.

According to Huntington, the disease appears more frequently amongst males. Wollenburg, out of a study of 128 cases, found the proportion of males to females 74 to 54. In our first family, the proportion was five males to four females, and in the second family out of 14 choreics, ten were male and four female.

The age of onset also varies in different individuals. Huntington states that he has not known a case that has shown marked signs of chorea before the age of 30 to 40. However, later observers have recorded cases occurring at a much younger age. Hoffmann has recorded a case where symptoms first appeared at the age of 10; Suckling has reported one beginning at the age of 12, and a number of cases have been reported between 20 and 30. Even supposedly congenital cases were reported by Gray and Stevens.

In the first family the age of onset was reported between 30 and 35 years, except in one case when it began at 25 and caused the patient's death at 40. The member of this family at present under treatment manifested his first choreiform movements at 35. In the second family the mother of the four patients at present under treatment was reported to have exhibited her first symptoms following childbirth at the age of 19. By the age of 25 her symptoms were so pronounced that she was unable to feed or care for herself any longer. Of her children, one daughter showed her first symptoms at the age of 18, also following childbirth. For about four or five years she was able to care for herself; however, ten years following the onset, at the age of 28, she was entirely helpless and in about the same condition as her mother. Another daughter showed her first symptoms at 30, and at 34 is in a far advanced condition of the disease. One son had manifested the first symptoms at 29, and another showed the earliest manifestations at 22.

The symptoms of the disease usually develop insidiously. The mental symptoms may in some cases, as in one of ours, precede the physical for a number of years. In cases where no family history can be obtained, a problem in diagnosis may exist, as in two of our cases, till the family history is completely investigated. Speech defect is usually one of the early symptoms noted. At times it may appear thick, the words are not enunciated clearly, or may become associated with a clucking or smacking noise; in later stages the words becoming altogether too indistinct to make out their meaning. Facial grimacing may be associated with the speech involvement. Choreiform movements of the extremities, later followed by rest of body, make their appearance. At first they are partly under control of the will, but later, as the disease progresses, voluntary control is lost. The symptoms usually become more marked when the patient is conscious of being observed, or when excited. The movements of the extremities are slower than those seen in Sydenham's chorea, and in some cases tend to follow a definite pattern. In one of our cases it consists of pronation and supination of the forearms, of extending them and clenching the fists. The patient assumes an attitude as if ready to box. This is repeated at the rate of from about 5 to 8 times per minute. The body is twisted laterally, or at times circularly, in a corkscrew fashion. The gait is bizarre, grotesque, loping, and in one of our cases is of a dancing variety. The twisting and turning of the body on itself suggests a definite incoördination between the trunk and lower extremities. In the advanced stages, locomotion becomes impossible. The constant twisting and turning may require restraint as the patient is in danger of falling out of bed and sustaining some bodily injury. At the end, the patient becomes a vegetating automaton, unable to care for himself any longer. Fatigue is an unknown complaint, no matter how continuous the movements are. We have not observed any movements during the time the patients are asleep, though the sleep is very restless and the patient tends to awaken at the slightest noise.

The mental symptoms at times may be the first to appear and may vary greatly in different patients as to form, though they all seem to terminate in progressive mental deterioration. Huntington mentions the tendency to suicide as an important characteristic of the disease. Two of our patients have exhibited definite suicidal tendencies on several occasions. Some of the attempts at suicide are probably due to impulses that have lingered in the patient's mind

before the onset of the disease. One of the patients (B. Br.) remarked before she was taken ill that she was going to kill herself in case she developed the same disease from which her mother was suffering. She did attempt to kill herself, unsuccessfully, on two different occasions.

Though delusions and hallucinations are considered very rare in this disease, they were present in two of our patients. A brother of the above patient, (R. E.) is markedly euphoric and grandiose at the present time. He likes to tell about the large sums of money he earned, also about the large sums of cash he has in different banks. Though his physical manifestations are rather slight and are only noticed when he becomes restless and excited, mentally this patient is very noticeably deteriorated. In this case the mental symptoms preceded the physical by several years. Two of the other patients are deteriorating rather rapidly, exhibiting complete apathy and lack of interest in their surroundings.

Some patients may become very irritable, stubborn, at times assaultive and hard to manage. Another one of our patients, (L. H.) exhibits numerous paranoid ideas against his wife and children. He accuses his wife of infidelity, of going out with different men, also of giving birth to illegitimate children. The patient's accusations were investigated and found to be untrue. The child that the patient accuses of belonging to another man closely resembles the patient in appearance. He also threatened his wife and the man he suspected with bodily injury. The same patient has suffered from excessive sexual desire for a number of years and used to get his wife to satisfy him, even in the presence of strangers. His delusions about his wife's infidelity is only an attempt to rationalize her unwillingness to satisfy his exaggerated sexual urge. It is interesting to note that an uncle of this patient, a patient in this institution about 20 years ago, also with chorea, accused his wife of infidelity and threatened to kill her and her hired man. Another one of our patients (E. E.) was brought in because of his childish reactions and because of several fires that he set in his neighborhood. At the present time he is in a very deteriorated mental condition.

After the onset of the initial symptoms the disease may last for a number of years before the patient dies. According to Hughes, the average is about 16 years. In our cases the shortest period was 10 years, while one patient has improved greatly under arsenic therapy and death followed twenty years after the disease became manifested. The mental symptoms, though not present in every case, when they do become apparent, necessitate the patient's commitment to an institution as it becomes impossible to care for him at home. At the end, the patient becomes completely bedridden, is unable to articulate or swallow food, and finally an intercurrent affection terminates life.

The hereditary characteristics of the disease are rather important in distinguishing it from a form of chronic progressive chorea also coming on in adult life, and also associated with marked mental changes, in which, nevertheless, no definite history of hereditary influence can be obtained. Physically it is impossible to differentiate the two forms. In our present report we shall include two cases of the latter in which, in spite of diligent search, no family history of chorea was obtained.

In the hereditary form, the disease is transmitted through the germ plasm from parent to offspring. In most of the cases reported, a history of chorea was obtained in at least one of the parents. Huntington, in his original paper, stresses the fact that in cases where neither parent is afflicted with the disease, the children may rest assured that they will remain immune. However, Lyons has reported one case in which the children of non-choreic parents in a choreic family were affected with chorea. In our first family, one of the parents died at 35, and did not have chorea at the time of her death, while one of her daughters died of chorea at 45. The father of the member of the same family (L. H.), at present under treatment, died of tuberculosis at the age of 45, and also did not suffer from chorea at any time during his life. Whether he would have developed chorea at a later age than 45, it is hard to state. However, all the members of the same family had their first symptoms already noticeable at an age between 30 and 35. We must conclude that if there was a possibility of the patient's father developing chorea, he would have exhibited some symptoms before the age of 35. The first case leaves us in some doubt as to her developing chorea if she had lived longer. This would tend to substantiate the report of Lyons that on rare occasions non-choreic parents may give birth to a choreic child if the disease is familial.

The neurological findings are not very definite. In the early stages the reflexes are unaffected. In later stages there may be inequality of tendon reflexes, and they may either be diminished or increased. Ankle clonus and a positive Babinski sign were elicited in one of our cases. Pupillary reactions usually remain unchanged. No muscle atrophy takes place, nor is there any marked loss of muscle strength, except in the last stages of the disease. Sensation remains unchanged. Coördination is very poor from the beginning and becomes worse as the disease progresses. Blood examinations were negative in all of our cases, while spinal fluid examination performed on different occasions disclosed a very slight amount of globulin in one case only. The spinal fluid sugar was normal in every case examined. The Wassermann reaction was negative both in the blood and in the spinal fluid.

The pathology of the disease has not been thoroughly worked out as yet. The pathological findings differed somewhat in some of the cases reported. It is still not fully determined whether the interstitial and vascular changes precede or follow the parenchymatous degeneration. Alzheimer found extensive changes in the cortex and corpus striatum and he feels that the changes in the latter are responsible for the motor phenomena. Atrophy of the cortex is most marked in frontal, precentral and central convolutions. Dunlap, in comparing the size and weight of any average Huntington chorea brain with that of a normal brain, concluded that while the choreic brain weighed 980 grams, the control brain weighed 1153 grams.

Schaller, in a report of three cases, found atrophic changes in the corpus striatum and cerebral cortex without any evidence of inflammatory reaction. In his cases the globus pallidus was equally involved with the neo-striatum. Wilson and Winkelman in a study of one case found a chronic degenerative process involving the Fronto-Rolandic cortex, the meninges, the caudate nucleus, the putamen, with an escape of the globus pallidus. No degeneration of pyramidal cells was found, while the small cells of the neo-striatum bore the brunt of the process. The large cells of the globus pallidus practically remained unaffected. So far as we know the small cells of the neo-striatum (caudate nucleus and putamen) exert an inhibitory action on subordinate centers. In case of atrophy or degeneration, hyperkinetic phenomena are manifested in the form of choreiform or athetoid movements. The destruction of the large cells of the globus pallidus gives rise to hypokinesis, as seen in the rigidities following encephalitis or in Parkinson's disease.

Besides the changes in the corpus striatum, atrophy of the ganglion cells associated with vacuolation, increase in pigment and glia, thickening of the meninges, dilation and thickening of the walls of cerebral arteries have been noted. No definite cord lesions were reported in any of the cases that came to autopsy.

No valid explanation for the hereditary nature of the disease has been found. Whether the disease is teratogenous in origin, or whether it is due to an inherited susceptibility to a low-grade encephalitic process coming on later in life, is impossible to state at the present time.

The diagnosis of the disease is rather simple in advanced cases exhibiting choreiform movements, characteristic gait, speech defect, and mental changes, together with a family history of chorea. General paresis will need to be differentiated in cases where the physical symptoms are slight and especially if the mental symptoms are accompanied by euphoria and ideas of grandeur. The negative serology together with a negative family history will help in differentiating the two conditions.

Double athetosis usually comes on at an earlier age, the movements tend to follow a definite pattern, and are more of a spasmodic character. The disease is only rarely hereditary.

Following encephalitis some disorders of mobility have been reported closely resembling Huntington's chorea. There is usually a history of the disease following an acute infection either typical of encephalitis or influenza.

Maladies des ties impulsifs, on rare occasions, may so resemble chronic progressive chorea as to make the distinction between the two diseases rather difficult.

In one of our cases of maladie des ties impulsifs, the gait closely resembled that of Huntington's chorea. Numerous twitchings, facial, muscular, and lingual, were present; the speech was accompanied by numerous humming and grunting sounds. The mental picture, however, was of a psychoneurotic nature and consisted of numerous compulsive and obsessive ideas associated with echolalia and coprolalia, which had existed since puberty. The absence of mental deterioration, the rapid and jerky character of the twitchings, and the fact that the ties have arisen as a response to psychogenic stimuli, would assist in the diagnosis.

CASE REPORTS

At the present time five cases of chronic progressive chorea of the hereditary type, and two cases of the non-hereditary variety are under treatment in the New Hampshire State Hospital. The first five patients belong to two different families, whose charts are included in the present report. The following is a summary of the data collected when the family history of the only member of the first family (L. H.) confined in the institution at the present time was investigated. A total of 129 members was reported, extending through seven generations, with the following results:

The patient's great-great-grandfather was the first to move into New Hampshire from Connecticut. He was the first known member to suffer from chorea. He had one daughter that suffered and died from the same disease. This daughter married a man who was married once before and had several children by his first wife. He also had eight children by his second wife. Of the children by his first wife, all were normal, while out of the eight children by his second wife, four died of chorea, and one was confined to this institution in 1890, two died of asthma, and the cause of death of the other two was not determined. In the fourth generation only two members had chorea. The mother of one of the patients in the fourth generation did not have any chorea at the time of her death, which took place at the age of 35 from tuberculosis. Our patient's father also died at 45 from tuberculosis

and he did not exhibit any signs of chorea at the time of his death. Our patient is the only member of the family in the fifth generation to be affected.

An uncle of this patient was confined to this institution about 20 years previously with a diagnosis of Huntington's chorea. A history of alcoholism was obtained in two members, and of marked nervous instability in one member of the fourth generation. Two members of the fifth generation and two of the sixth generation suffered from alcoholism and social maladjustment.

The patient, (L. H.) No. 17526, 43 years old, white, male, farmer by occupation, was admitted to N. H. S. H. Nov. 30, 1930, with a complaint of having attacked his wife and daughter on numerous occasions, of having threatened to shoot some of his neighbors, and also of exhibitionism.

The patient's past history disclosed an uneventful childhood with an adolescence marked by periods of irritability and numerous temper tantrums. He also suffered from somnambulism from early childhood. He married at 26 and has five children living and well. According to his wife, he always suffered from excessive sexual desire and insisted that his wife satisfy him even in the presence of strangers. He also used to exhibit himself at home by walking nude about the house. He exhibited mild choreiform movements for about ten years before admission. He appeared very suspicious of his wife, accused her of infidelity, and of giving birth to illegitimate children, though his accusations were ill-founded. He also threatened to shoot one of the neighbors whom he suspected of complicity with his wife. Finally he was considered a menace in his neighborhood and had to be committed to the New Hampshire State Hospital.

The following findings were noted on admission: His face was asymmetrical. The tongue protruded slightly to the right with coarse tremors. Marked speech defect was present. There was hippus of both pupils, though they were equal, regular in outline, and reacted normally. Heart and lungs were negative. The patient exhibited mild choreiform movements of the upper extremities, more marked when he was becoming excited. The movements consisted of pronation and supination of forearm and clenching of the fist. This continued at the rate of about five or six times per minute. The reflexes were hyperactive. No abnormal reflexes were elicited. Coördination was poor. Romberg's sign was absent. There was fusion of the first and second phalanges of the second and third toes of both feet. An inquiry into the descendants disclosed that none of them exhibits the same malformations.

Blood examination was negative. Lumbar puncture disclosed a pressure of 140 mm. with the patient sitting up; normal fall and rise on jugular compression; the fluid was clear, the cell count normal. Pandy reactions slightly positive. Ammonium sulphate ring test negative. Sugar 90 mg. per 100 cc. Wassermann reaction negative both in blood and spinal fluid.

Mental examination showed that the patient was well oriented for time, place and person. He appeared very unstable emotionally; he expressed numerous paranoid ideas against one of his neighbors, accused him of being the father of one of his children, and admitted threatening to shoot the same neighbor. He also showed considerable mental deterioration, poor insight and lack of judgment.

After his admission his choreiform movements became more marked, also his mental condition has been growing worse, so that at the present time he has to be under constant supervision. Because of his physical state he is unable to do any type of work. It is rather interesting to note that this patient's uncle, a patient here about 20 years previously, has expressed the same ideas regarding his own wife and his hired man. He also threatened to shoot them both. He died in the institution several years after admission*.

In the second family the disease is known to have existed for at least five generations. The earliest known member to suffer from the disease was a young woman that migrated from the North of Ireland to Canada in the early part of the nineteenth century. By 1827 she was in an advanced stage of the disease, and according to some of her descendants, she had to be kept in a straight-jacket because of the violence of her affliction. She married before the onset of the disease, and gave birth to nine children, out of whom three were choreic. One of her choreic sons moved to northern New Hampshire in the middle of the last century. "When he walked, his feet used to rattle like a snare drum," was the way an old inhabitant described his gait. Of his three children, only one, a daughter, developed chorea. It came on at the age of 19, and according to some eyewitnesses, her condition was dreadful at the age of 25. She later died insane at the County Farm. Of her six descendants, four, two brothers and two sisters, whose case histories are included in the present report, are confined to the New Hampshire State Hospital with chorea, and the other two are still in danger of developing the disease because they are yet comparatively young. The following is a summary of their case histories:

B. Br. No. 17398, a 36 year old female, married, and a housewife by occupation, was admitted to the New Hampshire State Hospital on July 11, 1930. The patient's past life was uneventful. She married at 20 and has two children. A daughter of nineteen is rather nervous and of a restless temperament, and the family feel that she is going to develop the same disease as her mother. The patient's first symptoms became manifested about six years before admission, at the age of 30. She appeared cross, irritable and hard to please. She threatened to commit suicide in case she developed chorea. The choreiform movements were insidious in their appearance. However, they gradually became more and more marked, and so did the patient's depression. At the time of her admission, the patient had attempted suicide on two different occasions, so that she finally had to be committed out of fear that she might succeed in killing herself.

On admission she showed some asymmetry of the face with numerous twitchings. Her speech was not distinct. Pupillary reaction was normal. There were numerous gross choreic movements of the upper and lower extremities. The gait was dragging, jerky, dancing, and showed marked incoördination between trunk and lower extremities. The choreiform movements were of a rate of about 10 per minute. Marked incoördination was present. The

*Similar ideas were also expressed by the patient's great uncle, who was confined to this institution in 1890.

reflexes were hyperactive. No abnormal reflexes were elicited. Examination of the blood and the spinal fluid proved to be negative.

Mental examination was very unsatisfactory as it was impossible to obtain a clear reply to questions because of marked speech defect.

Some slight improvement in the patient's condition was obtained under arsenicals and luminal. She is able to feed herself at the present time, though locomotion is rather impaired because of unsteady gait. She is still suicidal, and seems to think that this is the only way out of her misery.

B. Bl., No. 17651, was the second member of the second family to be admitted. She is a sister of the above patient. She was admitted March 3, 1931, is 41 years old, and married. The patient's life and development were normal until the age of 18, when the first symptoms became apparent after her first child was born. They consisted of mild choreiform movements affecting the face and upper extremities. She gave birth to two more children and following each childbirth her symptoms became more marked. She was partly able to attend to her household duties until two years ago. Since that time she has been quite helpless and unable to care for herself. She has had to be dressed and fed. She also became destructive, tearing her clothes to shreds. Her speech became entirely unintelligible and finally she muttered to herself in an incoherent manner.

When admitted to the institution her upper and lower extremities were in constant motion which ceased only during sleep. There was marked facial grimacing. Walking was very difficult and grotesque. There was marked scoliosis of the lower third of the spine. The pupils were dilated, reacted sluggishly, and the left pupil was slightly larger than the right. The tongue deviated to the right. The knee jerks were exaggerated. Sensation was normal. No muscular atrophy was found. The sphincters were normal. There were no abnormal reflexes. Articulation was very indistinct, consisting of incoherent muttering.

Since her admission the movements have diminished somewhat under luminal and arsenical medications. For a time she had to be kept in a crib bed as she was in danger of falling out and injuring herself. The movements are constant and cease only during sleep. She is unable either to dress or feed herself. Her appetite is good and there is no appreciable loss of weight.

R. E., No. 17691, was the third member to be admitted. He is 26 years old, single. He was admitted on April 5, 1931. His life and development were normal up to four years ago. At the age of 22 he began to show the first symptoms, which were mental in character. He became sleepy, apathetic, stubborn, unreliable, and showed a marked slump in his work as a driver. He was seen on a number of occasions sitting in one place staring into space.

On admission physicial examination was negative except for some slurring of speech and a peculiar squint of the eyes. The reflexes were normal. He was markedly grandiose and euphoric; thought he had some large sums of money in the bank, and said that his earning capacity was about $15,000.00 a year when it was only about $100 a month. He also stated that he was married, which on further investigation was found to be untrue.

Since admission he has been beginning to show some mild twitchings of the face. His speech defect is more marked at the present time. He is still grandiose, euphoric, resistive, quarrelsome and hard to manage.

The fourth member to be admitted was E. E. No. 17765, 41 years old, farmer, married. The patient's life and development were normal until about 12 years ago. At that time he developed some shaking of his hands, mild general choreic movements, and also began to show some mental deterioration. He became forgetful, rather irritable and abused his wife a great deal. In the end he became rather childish in his reactions and was suspected of setting several fires in the community. His wife finally deserted him because of his mental symptoms.

On admission he had a very dull facial expression. The mouth was slightly overdrawn to the left side and the tongue also protruded to the left. There was a right dorsal scoliosis with slight asymmetry of the chest. The left knee jerk was greatly exaggerated. There were marked choreiform movements of hands and arms. The gait was uncertain, coördination very poor, and the speech was very indistinct, showing some slurring, occasionally associated with a smacking sound. Mentally the patient showed definite loss of memory, particularly for remote events, and appeared to have very little insight into his condition. His judgment was poor and he seemed rather apathetic and indifferent.

Since his admission his physical symptoms have become more marked, and mentally he has shown considerable deterioration.

The following two patients have been suffering from chronic progressive chorea for a number of years, although on investigation no history of chorea in any of the antecedents could be obtained.

M. E. L. No. 14550, a 41 year old, married, housewife, was admitted July 2, 1923. The patient's grandfather was considered rather eccentric. Her father committed suicide and her mother was insane. This patient appeared to be normal until the age of 40 and then, following the death of her husband, she began to show some mental changes. She appeared rather irritable, restless, and entertained strange men in her home, causing quite a disturbance. Her behavior appeared so erratic that she finally had to be committed to the New Hampshire State Hospital.

On admission to the hospital her physical examination was negative except for slight swaying in Romberg's position, some unsteadiness in gait, and some incoördination of the upper extremities. There was some slight speech involvement, which consisted of slurring of words. Mentally she was rather childish in her reactions and appeared very neglectful about her personal appearance. She had no judgment and her insight into her condition was rather poor. Her choreiform movements appeared to become markedly exaggerated when excited and when conscious of being observed.

In 1930 she appeared emotionally very unstable, irritable, troublesome, and rather hard to manage. She also appeared to have deteriorated mentally. Physically she was unable to care for herself, either to feed or undress herself. She had numerous choreiform movements of the extremities, which consisted of pronation and supination of the forearm, extension of the arm and flexion of the wrist and clenching of the fist. Her speech was indistinct and was associated with smacking of the lips. There were flexion and extension of the legs and the knees while the patient was sitting down. The body was twisted to one side and then to the other. There were numerous facial grimacings. The knee jerks were hyperactive and at times hung up. The gait was typical of Huntington's chorea.

V. H., No. 17627, was admitted September 19, 1926. She is female, 17 years old and single. Her maternal and paternal grandparents were considered highstrung and one maternal aunt was very nervous. There was no history of chorea in any member of the family. Present illness began about two years ago. The family observed that patient began to exhibit some muscular twitchings; she also appeared very restless, showed some seclusiveness in her tendencies and finally the family found it hard to control her at home. On several occasions she was found lying in one position, apparently unconscious. During these unconscious spells the patient never frothed at the mouth, appeared incontinent, or exhibited any convulsions. She never injured herself during any of these attacks.

On admission the patient exhibited numerous mild choreiform movements of the face and upper extremities. Her gait showed some incoördination between the trunk and lower extremities. There was a slight swaying in Romberg's position. The pupillary reflexes were sluggish, and so were the tendon reflexes. Patient was discharged June 4, 1927 after some improvement, both mental and physical, had taken place in her condition under arsenical medication. She was readmitted on September 3, 1931. In the interval the patient got along fairly well. Her choreiform movements were rather mild in character until about six months before the second admission. At that time the choreiform movements were less marked in the morning but rather marked in the afternoon and still more evident at night. She also appeared more irritable and showed little interest in her environment, sat by herself a great deal of the time, humming and coughing continually for hours.

The physical findings at this time were similar to the ones seen on the previous admission. There was marked speech defect. The gait was suggestive of Huntington's chorea. The movements involved the face and extremities and were more marked when the patient was under some nervous tension. Under neoarsphenamine medication intravenously and luminal orally, marked improvement in the patient's condition took place. She gained considerably in weight and at present is able to attend to some housework. Together with the physical condition, her mental condition improved somewhat.

TREATMENT

The treatment of chronic progressive chorea is not very satisfactory at the present time. No drug is known that will completely arrest the progress of the disease. Artificial fever therapy produced by aolan injection was tried in one of our cases with unsatisfactory results. We have obtained some temporary improvement in the physical symptoms in two cases under arsenicals and luminal. Both Fowler's solution in increasing doses and neoarsphenamine intravenously were used. Of all the forms of treatment, in our experience, none proved so effective as tincture of stramonium in increasing doses till 12-15 cc. daily are administered. In one of our milder cases the choreiform movements have entirely disappeared since stramonium administration was begun. It is only when the patient becomes excited that an occasional twitching of the facial muscles may become apparent. In three other cases where any other form of therapy failed and the twitchings were constant and very distressing, a daily dosage of 10-12 cc. reduced greatly the number and extent of the movements. Two of the patients are capable of attending to their personal needs at the present time, something they were unable to do when medication was begun. Besides the physical improvement, a marked change for the better in the patients' mental conditions also took place. A great deal of the restlessness that used to interfere with their sleep has disappeared. The effect of stramonium on Huntington's chorea is probably analogous to its effect on paralysis agitans syndromes seen following encephalitis lethargica. The brain lesions in some of the postencephalitic conditions are similar to those found in chronic progressive chorea, the choreiform movements mainly being due to involvement of the basal ganglia.

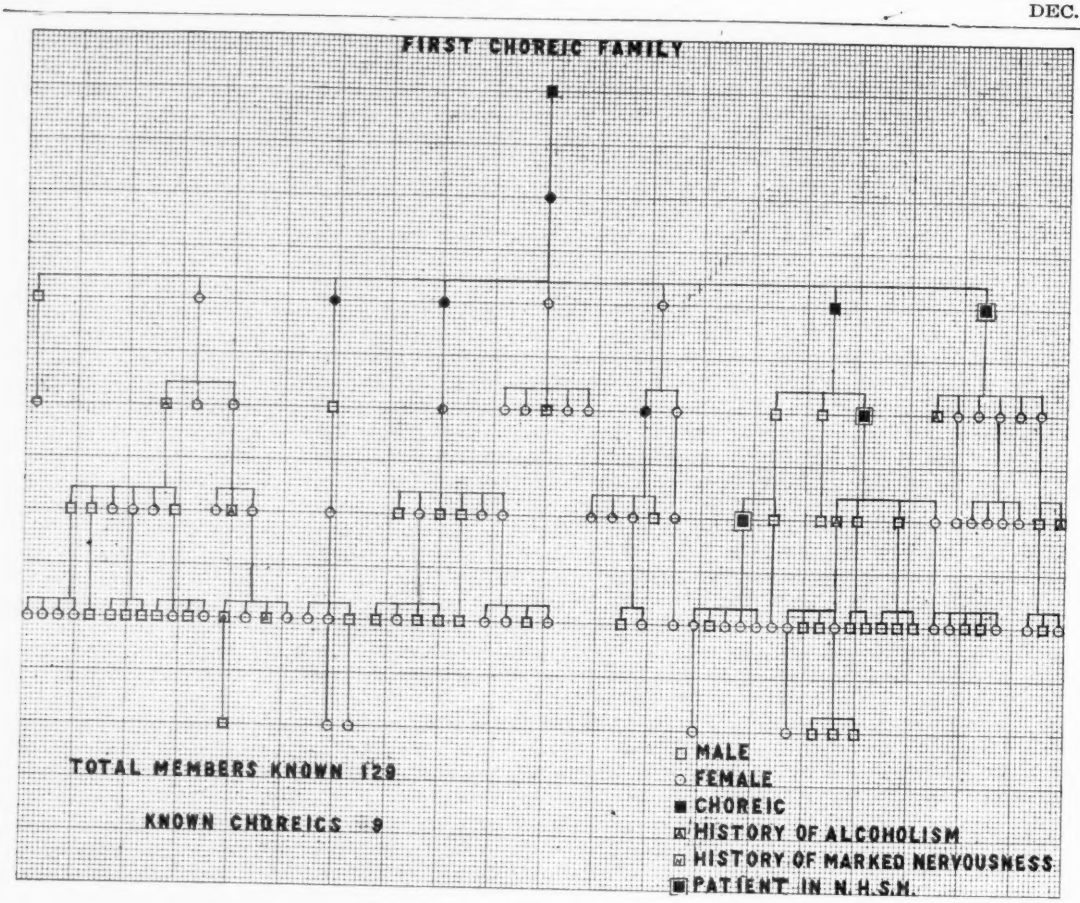
No untoward effect was encountered during the administration of stramonium except in one case where some disturbance of accommodation took place, and which disappeared when the dose was somewhat decreased. The dose of the drug will have to be regulated to conform to the patient's individual idiosyncrasies to the belladonna group of alkaloids, and the administration will have to be continued as its effect disappears when the administration is stopped.

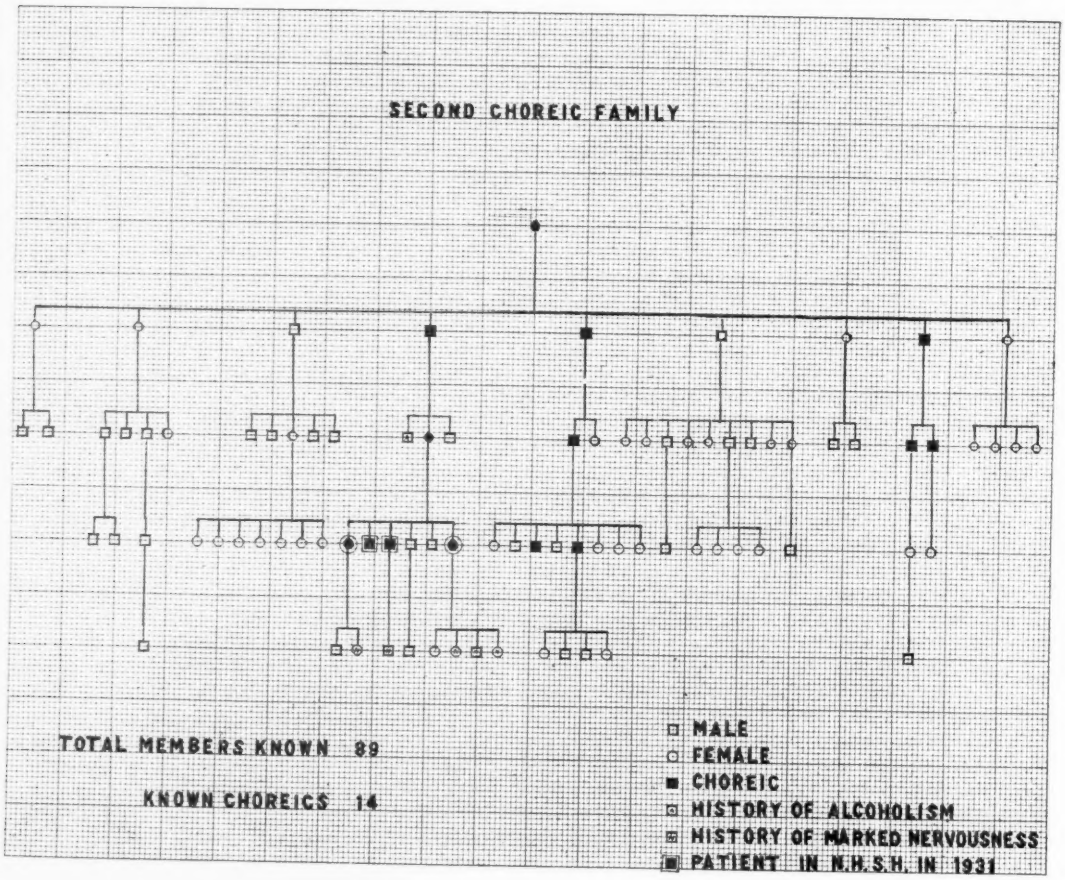
DISCUSSION

From the social point of view the disease is important for several reasons: (1) the danger of the disease being transmitted to the offspring. (2) the incapacity coming on an individual in the prime of life, and the hardships it is going to cause his family; (3) the expense to the state for the maintenance of the choreic patients and their descendants.

In a field study of choreic families it was found that in a great majority of instances they were more prolific than normal families in the population at large. Birth control or restraint from having children has not been found to be taken into consideration by any of the members of these families; only one member in our studies admitted having refrained from marrying out of fear of transmitting the disease to his children, as two of his brothers and two of his sisters were already afflicted.

The dangers of transmission will vary in different families and will depend on the frequency with which the different members are affected, the severity of the symptoms, the mental and nervous stability of the non-choreic partner, and also on their willingness to practice self-restraint or birth control. In the first family the disease, as can be seen from perusal of the family chart, is evidently receding. While in the first and second generations both living members were affected, in the third generation four out of eight were choreic; in the fourth generation only two out of twenty-five members suffered from the disease, and in the fifth generation only one out


FIRST CHOREIC FAMILY
TOTAL MEMBERS KNOWN 129
KNOWN CHOREICS 9
MALE
FEMALE
CHOREIC
HISTORY OF ALCOHOLISM
HISTORY OF MARKED NERVOUSNESS
PATIENT IN N.H.S.H.


SECOND CHOREIC FAMILY
TOTAL MEMBERS KNOWN 89
KNOWN CHOREICS 14
MALE
FEMALE
CHOREIC
HISTORY OF ALCOHOLISM
HISTORY OF MARKED NERVOUSNESS
PATIENT IN N.H.S.H. IN 1931

of twenty has chorea. Histories of marked nervousness and alcoholism, however, were obtained in twelve per cent of the members of the fourth generation and in ten per cent of the members of the fifth generation. The chances, therefore, for the disease disappearing entirely from this family are favorable, more so, since the wife of the only choreic member of the family is considered to be mentally very stable and no symptoms of nervousness have so far been detected in any of their children.

On the contrary, in the New Hampshire branch of the second family, the prospects for the descendants escaping the disease are not so favorable. Four out of six are already affected and committed to this hospital. It is yet too early to judge the chances of the other two unaffected members altogether escaping the disease. Of their descendants, five out of seven already display marked symptoms of nervousness, and though it is impossible to foretell which one is going to develop the disease, the family feels that the oldest daughter of B. Br., No. 17398, 20 years of age at present, is going to develop it because of her advanced nervous state. The father of the above four choreics is himself a very nervous, easily excitable individual, and he probably contributed his share to the factors that make up for the severity of the disease in the offspring.

The incapacity coming in adult life, especially if the patient happens to be married and has children, has oftentimes a devastating influence on the family. The home life is broken up, and, of course, as the disease is known to be incurable, the family entertains no hope for a recovery. Like Damocles' sword, the disease hangs over the heads of the unaffected members who are in constant dread of developing it, till the age of susceptibility is over.

The expense of maintaining the choreic members will also need to be considered. The five choreic patients are State supported at the present time. An uncle of one of the above patients was partly supported for a number of years. At a conservative estimate it will equal probably about $2000 a year. With the life duration of ten to fifteen years, after the onset of the symptoms, this will amount to a tidy sum.

No choreic patients should be allowed to leave the institution after commitment unless provisions are made that they be sterilized or are beyond child-bearing age. The N. H. sterilization law providing for the sterilization of patients in the State Hospitals for the Insane will permit the sterilization of patients whose families request their release. Suggestions of birth control or restraint from having children, whenever possible, should be made to the unaffected members of families who wish to marry and are in danger of developing the disease in later life.

SUMMARY AND CONCLUSION

Five cases of chronic, hereditary, progressive chorea (Huntington's disease) in members of two choreic families, and two cases of chronic progressive non-hereditary chorea, are described and discussed.

A genealogic study of the two families with a total of 218 members, out of whom 23 have suffered from chorea, is included.

The different physical, mental, neurological, and hereditary findings are compared with those of other observers, while the history of the disease and the literature are briefly reviewed.

A history of alcoholism was frequently obtained amongst the unaffected members, also a history of nervousness and social maladjustment.

In two instances no history of chorea was found in the parents of choreic children, though the disease is familial.

The use of stramonium is suggested as being most effective in combating the physical and some of the mental manifestations of the disease.

The disease has a certain social importance which is briefly pointed out.

I wish to express my thanks to Dr. Dolloff, the superintendent of the New Hampshire State Hospital, for the permission to use the clinical material included in this study; also to Miss Hall and Mrs. McGuire of the Social Service Department for their valuable assistance in tracing the family histories of the above patients.

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THE FIRST SECTARIAN MEDICAL SCHOOL IN NEW ENGLAND, AT WORCESTER (1846-1859), AND ITS RELATION TO THOMSONIANISM

BY FREDERICK C. WAITE, PH.D.*

SECTARIAN medicine in the United States had its incidence in New England, coming from two sources, the one exotic, the other native.

HOMEOPATHY

Homeopathy was imported from Europe. There it was a recrudescence of medical doctrine that goes back to the early centuries of the Christian era. It became dormant and was revived in the Middle Ages to disappear again. In 1796, in Germany Samuel Hahnemann again resurrected the doctrine, and added to it the theory of dilutions.

Dr. Johannes B. Gram was the first homeopath in the United States. After study in Europe he began, in 1825, the practice of homeopathy in Boston from which point it slowly spread. Its growth was slow because of the opposition, not only of regular medicine, but also of the firmly entrenched Thomsonianism. Not until the disintegration of Thomsonianism began, about 1835, did homeopathy make much headway. However, the first sectarian medical school in New England was not homeopathic. The first homeopathic school opened in Philadelphia in October, 1848, but it was not until 1873 that a homeopathic school appeared in New England.

PERKINISM

The first noteworthy American medical cult was Perkinism, but it did not grow to the dignity of a medical sect. Dr. Elisha Perkins, a highly capable regular physician of Norwich, Conn., began to experiment on the use of his metallic tractors about 1788. In 1796 he secured a patent and soon they attained considerable popularity. In 1798 they were introduced in Copenhagen, Denmark. The growth of the cult was inhibited by Dr. Perkins' death from yellow fever in 1799 at the age of fifty-nine years. His son, a graduate of Yale, but not medically trained, tried to promote the cult both in this country and in England, but his death in 1810 practically brought the end of Perkinism and it had no further influence in American medicine. It is an interesting coincidence that Perkinism and Homeopathy were promulgated in the same year, 1796.

THE THOMSONIAN BACKGROUND

Domestic medicine was commonplace in colonial New England. In the latter part of the eighteenth century began to appear treatises on domestic medicine which increased in number and popularity. While domestic medicine was unorganized, its prevalence prepared the way for the first great American medical cult, which reached dimensions much exceeding those of any later cult.

This great cult which developed into a medical sect with a literature, an organization and an educational program was called Botanic Medicine, but more familiarly known as Thomsonianism after its founder.

Samuel Thomson (1769-1843) was a farmer of southwestern New Hampshire with an extremely meager education. About 1806 he assumed the rôle of an herb-doctor, and soon claimed that he had discovered a new system of medical practice, considering himself divinely called to this career. He extended his practice to Vermont, Maine, and Massachusetts, and in 1808 took as his first apprentice a blacksmith's helper.

In 1813 he secured a patent on his system of practice which, with a revision and a renewal, continued valid until 1851. In 1813 he began to sell patent rights to the use of his system at twenty dollars each. Each was accompanied by a small pamphlet directing the purchaser how to prepare the remedies and practice the system. The buyer was required to pledge not to divulge the system or lend the book. This latter pledge Thomson justified by the doctrine that the treatment would not be efficacious if given by anyone who did not personally own the book, a selling device many years later adopted by Eddyism.

In 1810 at Portsmouth, N. H., Thomson set up a manufactory of his remedies. This was later extended to several extensive establishments in other states. In 1811 he organized his adherents into the Friendly Botanic Society. In December, 1832, at Columbus, Ohio, this society held the first national convention of a medical nature in America. In that same year began the establishment of Thomsonian journals.

His originally small pamphlet of directions was much enlarged into a "Narrative and Guide to Health," first published in Boston in 1822. It ran through thirteen large editions in eighteen years, and became a book of several hundred pages with colored plates of plants used in preparation of the remedies.

The spread of the cult was phenomenal. About 1840 Thomson stated that he had sold one hundred thousand rights to practice and that his system had three million adherents in the United States. The price was $20 to a layman

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and $500 to an educated physician. There is no record that any were sold to the latter group.

The vogue of the cult was enhanced by what the Thomsonians claimed to be the enthusiastic support of Dr. Benjamin Waterhouse, Professor of Medicine at Harvard, and of C. S. Rafinesque. What Dr. Waterhouse really did was to plead for tolerance and critical examination of the Thomsonian system by the medical profession in order to cull from it whatever of good it might contain.

Constantin Smaltz Rafinesque (1784-1840), French by birth, brilliant naturalist and scientist, and extensive writer, was professor of Botany, Natural History, French, Spanish and Italian in Transylvania University for several years (1819-?). In his Manual of Medical Botany of the United States (2 vols. Philadelphia 1828-30) he, to some extent, supported Thomsonianism.

About 1830 the vogue of Thomsonianism began to wane in New England, its adherents being attracted by the more novel homeopathy, but it continued to spread to the West and South with its chief centers in central New York, southern Ohio, eastern Virginia, and central Georgia.

Samuel Thomson, himself devoid of both general education and of medical training, was opposed to the establishment of schools to teach his doctrines. He said that the ability to practice medicine was innate and a gift of God, and that education was really detrimental since it biased the mind against new or original ideas.

THE REFORMED BOTANICS

In 1826 a group of the followers of Botanicism in New York became tired of the personal domination of Samuel Thomson and his sons. Under leadership of Wooster Beach (1794-1868), a native of Connecticut, they seceded and organized under the caption of the Reformed Botanic Society, a designation soon changed to Reformed Medical Society. Organized teaching was begun in New York City in 1829. The attempt to secure a charter in New York for the Reformed Medical Society failed. This group then moved to central Ohio where "people were more liberal minded," and in December, 1830, established the Reformed Medical School of Worthington (Ohio) College under a dormant college of the Episcopal Church chartered in 1819. It granted its first degree in 1833.

In 1839 this medical school suspended and in 1842 its existence ended. The Beachites, as they were called in derision by the Thomsonians moved to Cincinnati where in 1843 teaching was revived without a charter, under the name of the Reformed Medical School of Cincinnati. In 1845 this school was chartered as the Eclectic Medical Institute, and continued until 1929.

EARLY THOMSONIAN MEDICAL SCHOOLS

Alva Curtis, a native of New Hampshire with a college education, was a school teacher in Richmond, Va., when, about 1830, he took up the Thomsonian practice. In 1834 he moved to Columbus, Ohio, where he became editor of the Thomsonian Recorder, practiced medicine and took private students. In 1838 he came into disagreement with Samuel Thomson and established a rival society. Well-educated and virile, Curtis became the leader of a large faction. This marked the second schism in Thomsonianism.

In March, 1839, Curtis secured a charter for the Literary and Botanico-Medical Institute of Ohio. Under this charter a medical school was established in Columbus and began operation in the autumn of 1839. This was the first chartered Botanico-Medical school. In 1841 it was moved to Cincinnati and the name changed to Botanico-Medical College of Ohio, and continued until 1850. Thus Cincinnati became the center of both the factions that had repudiated Samuel Thomson's authority.

The personal domination of Samuel Thomson was less potent in Georgia, remote from his residence in Boston. At Forsyth, Ga., in December, 1839, was chartered and opened the Southern Botanico-Medical College. Its leader was Lanier Bankston, who had taken part of a regular medical course. In 1845 it was removed to Macon. In 1884 after several changes of name, it was merged into an eclectic medical school which continued until 1916.

In February, 1846, was chartered and opened the Botanico-Medical College of Memphis, which became an eclectic school in 1859 and closed in 1861.

In 1847 was chartered and established the Scientific Medical and Eclectic Institute of Virginia at Petersburg, Va. It continued but three or four years. In the same year a Botanico-Medical school started at Cleveland, Ohio, but this expired after one session.

RESULTS OF DEATH OF SAMUEL THOMSON.

In New England during his lifetime Samuel Thomson was able to prevent the establishment of any botanico-medical school. He died in Boston in 1843. It is a coincidence that Samuel Thomson and Samuel Hahnemann, the two founders of the two medical sects prominent in America in the first half of the nineteenth century both died in the same year of 1843.

With Samuel Thomson's death Thomsonianism, already disrupted, was further split into factions by contentions for its leadership and was soon disintegrated into four groups, the True Thomsonians, the Physiopathists, the Physico-Medicals, and the Eclectics. In twenty years there were but small remnants designated as Botanics or Thomsonians, while the Eclectics became the dominant faction.

For the present consideration the more important result of Samuel Thomson's death was that it removed the opposition to establishment in New England of a medical college of this sect. Within a few months several projects for a school were inaugurated, but none of these attempts succeeded.

DR. CALVIN NEWTON

The founder of, and chief force during his lifetime in, the school at Worcester was Dr. Calvin Newton (1800-1853) a man of superior qualities and extensive education. He was born at Southborough, Mass., and attended Brown University and graduated at Union College in 1826. In 1829 he graduated at the Newton Theological Institute and from 1828-1831 served as a Baptist clergyman. From 1831-1838 he was Professor of Rhetoric and Hebrew at Waterville (now Colby) College. From 1838-1841 he was a professor in and president of the Theological Institute at Thomaston, Me.

He then returned to pastoral duties and soon took up the study of medicine. He entered Berkshire Medical Institution in 1842, received the M.D. degree in 1844, and began practice in Worcester. In 1845 he became a Fellow of the Massachusetts Medical Society. In 1845 he styled himself an eclectic, stating that he opposed no school of practice, but endeavored to gain from all. Following the advice of Dr. Benjamin Waterhouse, he critically examined Thomsonianism and found some good in it, but refused to subscribe to the dogmas of Samuel Thomson or to those of any one of the factions. He stated it as his purpose to harmonize the quarreling factions of sectarian medicine with the best in regular medicine.

In January, 1846, he established at Worcester the New England Eclectic and Guide to Health, a journal which, under two changes of name, he edited until his death. He was a professor in the school at Worcester from its founding until his death, and also for one session (1852-1853) a professor in the Syracuse (N. Y.) Medical College. In 1852 he was President of the National Eclectic Medical Association.

He was the most highly educated eclectic of the middle nineteenth century, a man of high purpose and sterling integrity. He died of typhoid fever at Worcester, August 9, 1853.

THE ESTABLISHMENT OF THE SCHOOL AT WORCESTER

At a meeting on January 27, 1846, the Uxbridge, Mass. Botanico-Medical Society decided to have a course of lectures given by Dr. Calvin Newton of Worcester and Dr. C. W. B. Kidder of Providence, and passed the following resolution:—"Resolved that a medical school be forthwith established in Worcester to be called the Worcester Medical School and to be placed under the supervision and general direction of a Committee or Board of Trustees consisting of fifteen in number, five of whom shall constitute a quorum for doing business."

These fifteen men were immediately chosen. Three of them were residents of Rhode Island, the rest from eastern Massachusetts. This group chose a prudential committee to transact necessary business, consisting of Dr. Calvin Newton and Dr. John A. Andrews of Worcester, and Dr. C. W. B. Kidder of Providence. The first course ran from late February to early June, 1846, with fifteen students enrolled. There were four professorships established. These were Anatomy, Surgery, and Physiology occupied by Dr. Kidder, and Pathology and Materia Medica by Dr. Newton. Professorships in Chemistry and Botany and also in Theory and Practice of Medicine and Obstetrics, were designated, but not occupied in 1846.

ITS VARIED CAREER

In March, 1846, informal arrangements were made for recognition of the course by the Southern Botanico-Medical College of Macon, Ga.

In May, 1846, this Georgia institution formally ratified this action. At that time its leader was Isaac Miller Comings (1812-1889). He had been a student under Dr. Newton while he was a professor at Waterville (Colby) College and held the A.B. degree (1836) from Waterville (Colby) and M.D. degree (1842) from the Southern Botanico-Medical College.

On June 3, 1846, the Worcester Medical School graduated its first class granting four degrees in course and three honorary degrees. All three of the recipients of the honorary degree and one of the recipients of the degree in course were members of the board of trustees. On this same day a formal contract was made with the Southern Botanico-Medical College by which the Worcester school changed its name to Worcester Botanico-Medical College to bring the two names in accord, and was designated as a branch of the school at Macon, Ga. Dr. Kidder resigned from his professorship and the new faculty was made up of Dr. Newton, Dr. Comings, and two other professors from the Georgia school. This arrangement was possible since the term at Macon was from November to February and that at Worcester from March to June. This arrangement was effective for the terms of 1847 and 1848.

In 1848 the Worcester school changed its name to the New England Botanico-Medical College and became a branch of the school at Petersburg, Va., which had opened in 1847 and in which Dr. Comings was professor of obstetrics. Under the charter of this school the degrees of students at Worcester were conferred in 1849 and 1850.

Beginning in 1847 efforts were made by Dr. Newton to get a Massachusetts charter, but the opposition of the Massachusetts Medical Society as well as that of the adherents of the Harvard and the Berkshire medical schools defeated his

efforts. The efforts were repeated in 1848, but again failed. Finally, on March 10, 1849, a bill was passed granting a charter under the name of the Worcester Medical Institution, but not giving the right to confer degrees. (General and Special Statutes of Massachusetts, 1849. Chapter 28.) The degrees were conferred under the charter of the school at Petersburg, Va., until, in May 1851, an amendment to the charter gave the Worcester Medical Institution the power to confer degrees. (General and Special Statutes of Massachusetts, 1851. Chapter 321.)

With the securing of an independent charter came renewed interest, and the attendance increased to about forty for the sessions of 1851, 1852, and 1853. In 1852 an affiliation was made with the Syracuse N. Y. Medical College.

With the death of Dr. Calvin Newton in 1853, the school came under the leadership of Dr. Walter Burnham (1808-1883). A graduate in medicine at the University of Vermont in 1829, he had acquired a considerable reputation as a skillful surgeon. After practicing in Vermont and Connecticut he located in Lowell, Mass. About 1845 he affiliated with the Eclectics and soon after became the first president of the Bay State Medical Reform Association and in 1854 was President of the National Eclectic Medical Association. Later he repudiated Eclecticism and in 1863 became a Fellow of the Massachusetts Medical Society.

Dr. Burnham lacked the personal popularity of Dr. Newton. Moreover, he did not reside in Worcester and there was not full confidence in his devotion to eclecticism. These circumstances and the financial difficulties of the institution brought about its rapid decline, both in attendance and in quality of instruction.

In 1855 its building was sold for indebtedness and was occupied by the Ladies' Collegiate Institute. The medical school moved to quarters in the Warren Block on Pearl Street. There were frequent changes in the faculty, the experienced teachers resigning and being replaced by men with no previous teaching record. Some of the teachers failed to give their announced courses. In 1856 Dr. Burnham resigned and Dr. John W. Johnson of Hartford, Conn., became dean.

In October, 1856, the trustees decided to move the school to Boston. The session in the spring of 1857 was given in Chapman Hall near Tremont and Bromfield Streets, Boston, with meager success and a very small attendance.

After the decline of the school began in 1854, in published notices and circulars there is studious avoidance of any exact figures on attendance. It is doubtful if any lists of students were published after 1853.

The school was now moribund. It had no building, little, if any, equipment, few students, and most of the faculty had resigned.

Under these circumstances, in December, 1857, it was announced that in the future the course would be given from November to February instead of from March to June and that there would be no course in the spring of 1858.

In 1858 an unsuccessful attempt was made to merge with the Metropolitan Medical College, a physio-medical school that existed from 1857 to 1862 in New York City.

It was announced that a session would be given at Worcester beginning in November, 1858. Careful search of newspapers and eclectic journals has failed to yield any evidence as to whether this session was carried through or even begun.

In March, 1859, there is record that the school had suspended and that, on February 15, 1859, the trustees had appointed Professor W. C. George of Worcester as agent to solicit contributions to permit the founding of an eclectic medical journal and the reopening of the school. The teaching in this school ended not later than February, 1859, and possibly there was no teaching after June, 1857.

THE STUDENTS AND GRADUATES

A statement by an officer of the school in March, 1859, says that the school had over 200 alumni. From available records it is evident that there cannot have been that many graduates unless there was a wholesale distribution of diplomas in February, 1859. It is probable that in this statement the word alumni should be interpreted as former students; a usage not infrequent at this time by non-graduates.

These students were chiefly from New England. The lists of students and of graduates give the state of residence. From the lists available, which include 185 of the "over 200" names, it appears that 48% came from Massachusetts, 35% from the five other New England states, and 17% from outside New England, mainly from New York with an occasional student following a visiting professor coming from a more distant state.

In the earlier years the students and graduates were largely Thomsonian practitioners, many of their names being found in the Thomsonian journals of the period. Practically all the honorary degrees were given to Thomsonian practitioners. Among the graduates in course, four are identified as having formerly been students who did not continue to graduation in one of the regular medical schools of New England. Only one was a graduate of such a school.

At this time in the regular medical schools of New England a considerable part of the students were graduates in arts. In the graduating medical class of 1850 in these schools are found the following percentages of those who were holders of an A.B. degree, viz., Harvard 35%, Yale 25%, Bowdoin 20% and Dartmouth 11%. Berkshire, Castleton and Vermont Medical Colleges were each below 10%.

Since most of the Worcester medical students were residents of New England, it is probable

that if they had gone to an arts college, it would have been one of these colleges in New England. Of the 140 individuals known to have been graduated at Worcester, the names of 128 have been found. These 128 names have been checked against the alumni lists of all the New England colleges of arts. This discloses only one graduate at Worcester who had graduated from a New England college of arts, namely Andrew Jackson Howe (A.B. 1853 Harvard) who was the best known of all Worcester graduates, being a successful author and medical teacher at Cincinnati for many years. One graduate of Worcester subsequently graduated in arts. This was Marshall Calkins (M.D. 1848, Worcester, A.B., 1853, Union). It is of interest that he later repudiated Eclecticism and in 1862 became a member of the Massachusetts Medical Society. Later he entered Dartmouth Medical School and graduated in 1868. He was professor of physiology in the University of Vermont from 1873 to 1879, and practiced in Springfield, Mass., where he died in 1922 at the age of 94 years.

Several other graduates of Worcester abandoned eclecticism as indicated by subsequent graduation from regular medical schools or by admission to the Massachusetts Medical Society. The printed lists of students at Worcester, which have been found for several classes, but not including that of which Mr. Howe was a member, make no mention of any student holding an arts degree. A few show a previous M.D. degree. Most of these have been identified as coming from Thomsonian or eclectic schools, and only one from a regular school.

The striking contrast in percentage of holders of arts degrees when the graduates of Worcester are compared with the graduates of regular medical schools in New England agrees with many other sources of information showing that the students in Thomsonian schools and in the sectarian schools derived from them were distinctly inferior in previous educational experience to the students of regular medical schools of the same period and geographical region.

This is a logical result. Students who chose to attend the Worcester school were under Thomsonian influence and the followers of Samuel Thomson took at face value his dictum that lack of general education was an advantage in the practice of his system of medicine. In general the preliminary education of the students in such a school as Worcester was meager, and of necessity the quality of the instruction was forced to descend to the level of the capabilities of the students.

CONCLUSION

Thus we see that the Worcester Medical Institution during the fourteen years of its existence was poorly equipped and had little financial support. The tuition charge of $60 per session indicates an income varying from $900 to $2400 per year. Continual appeals to the profession and laity for individual contributions met with little response. It had a student body with meager general education, and a constantly changing teaching staff, under which no continuity of educational policy could exist.

Under these conditions this school was far inferior to any of the seven contemporary regular medical schools in New England. It is small wonder that the school died from financial and educational debility. This outcome may explain the fact that the eclectic sect never made much headway in New England.

The history of the Worcester Medical Institution is not far different from that of some twenty-five short-lived schools that developed before the Civil War out of the disintegration of Thomsonianism. Heirs of Samuel Thomson's doctrine of the advantage of ignorance, they became a quarreling and undignified group of four or five factions, with constantly shifting policies or none at all. Their journals contain much of polemics and personal vituperation. The very word eclectic indicated instability. The designations of the various factions changed so rapidly that the schools had to change their names from year to year. Finally to avoid recurring changes of name, some adopted a non-designative name such as National or American, or United States Medical School.

Few of these schools developed any educational policy. They gave their efforts to seeking recruits to their various factions rather than to training the students who came to them. The continuation of low educational standards and ideals in the descendants from this group of schools is shown by the fact that the medical diploma mills and licensing frauds of less than a decade ago were almost entirely concerned with schools and examining boards of the eclectic sect.

To all this there was one striking exception. This was the Eclectic Medical Institute of Cincinnati which in its eighty-four years maintained educational policies fairly commensurate with the current standards of the regular and homeopathic schools.

With this single exception the schools that came from the disintegration of Thomsonianism mark the nadir of standards in American medical education.

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CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 18481

ABDOMINAL ENLARGEMENT WITH SLIGHT JAUNDICE

MEDICAL DEPARTMENT

A business man forty-nine years old, of German birth, entered complaining of swelling of the abdomen of five months' duration.

The onset was with no discomfort except a heavy feeling. About the same time he noted a generalized itching of the skin which increased in severity. At about this time his attention was called to the fact that he showed jaundice. This too increased until two months before admission. He had vertigo and slight chilly sensations, and tired so easily that he consulted a physician, whose medicine gave him no relief. He noted hemorrhoids. Three months before admission an x-ray examination showed the upper gastro-intestinal tract normal except for enlargement of the liver. No barium enema was done. Two months before admission another physician tapped his abdomen, drawing off 8 quarts of fluid. Coincident with this the jaundice and itching were relieved. He also had his hemorrhoids treated. A month before admission he again noted enlargement of the abdomen and some swelling of the legs. He was again tapped with withdrawal of about the same amount of fluid. The edema was cleared. During the week before admission the patient for the first time had slight indigestion with a little nausea and vomiting. During his illness he had noted a marked decrease in the amount of urine.

One sibling died of tuberculosis. One child was living and well. His wife had had no other pregnancies in twenty-four years of marriage.

He had been a delicate child. At twenty-nine he was in a sanitarium for six months with questionable pulmonary tuberculosis. He was able to work all the time while there, had no fever or sputum, and did full work when he left. He had gained 20 pounds in the past six months. He was much inclined to worry and thought his present trouble was brought on by worrying.

Examination showed a well nourished man with thin face and extremities, swollen abdomen and probable slight jaundice of the skin and mucous membranes. The diaphragm was high on both sides, front and back. The heart and lungs were normal. There was slight prominence of the veins above and below the abdomen. The intercostal spaces at the apices were a little narrow. The abdomen was distended, heavy and tympanitic. A 20 centimeter bubble stayed at the apex as the abdomen was shifted. There was some tenderness in the right and left upper quadrants just below the costal margin on deep inspiration, perhaps marking the lower borders of the spleen and the liver; but no definite masses were made out. There was protective spasm. There were small old external hemorrhoids. The ankles showed one half centimeter of pitting edema. There was some retraction of the apical ribs. The pupils and reflexes were normal.

The urine was negative except for bile. Blood examination showed 16,000 to 13,100 white cells, 79 to 94 per cent polynuclears, hemoglobin 65 to 55 per cent, reds 4,140,000 to 2,099,000, with slight achromia. Two Hinton tests were negative. A bromsulphthalein test showed 80 per cent dye retention in thirty minutes. A van den Bergh at entrance showed 4.9 milligrams of bilirubin, direct reaction; three days later 5.51. An abdominal paracentesis gave 5,000 cubic centimeters of cloudy light yellow serous fluid, specific gravity 1.006, total protein 0.7 per cent, 100 white cells and 400 red cells. Another tap three days later gave 2600 cubic centimeters of clear yellow fluid, specific gravity 1.004.

The temperature was 97.4° to 100.2°, the pulse 71 to 120, the respiration 16 to 36.

X-ray examination showed the diaphragm low. The apices were retracted. There was mottling in both infraclavicular regions. The kidney shadows were faintly visualized. There was no evidence of stone in the kidneys, ureters or bladder. The visualized bones showed no definite variation from the normal.

Two days after admission another examiner could feel neither the liver nor the spleen and found the liver very small to percussion. He found prolonged expiration and dullness at the right apex. On the fourth morning the patient was very drowsy, twitching a little, and smelt cholemic. The following afternoon he was semicomatose. On the sixth day only a very small area of liver dullness could be percussed in the right axilla. That day the patient died.

CLINICAL DISCUSSION

DR. RICHARD C. CABOT: What often gives swelling of the abdomen of five months' duration, aside from obesity, for which he probably would not have entered the hospital? Of course that is the commonest cause, but we do not count that because it does not turn up here. If we put that out, then surely ascites. If it was not ascites, what else might it be?

A STUDENT: Gas.

DR. CABOT: Gas would not stay there five months. If it is not gas and is not water, what is the other state of matter? What might it be? If it is not fluid or gaseous it might be solid. The two things we deal with are solid or fluid accumulations. Of the two, fluid is the more common. We more often see people with a big fluid accumulation than with a big solid tumor, especially of late years. We used to see a good many cases just like this which were enormous ovarian tumors. Now we do not often see these huge things.

With itching of the skin plus enlargement of the abdomen of course we are thinking of the liver as the cause of ascites.

The jaundice, I take it, has persisted ever since the onset, so we know that he has had jaundice more than two months. There are very few causes of jaundice of more than two months' duration. I will come back to those causes after we have read a little further.

"He had vertigo and slight chilly sensations, and tired so easily that he consulted a physician, whose medicine gave him no relief." That sentence does not help us at all; it merely shows that he was rather ill. Hemorrhoids also do not help diagnosis, although they are often thought to be connected with liver disease. We do not any longer believe it.

Let us take the common causes of the two symptoms that he had. The common causes of ascites are three. Much the commonest is cirrhosis of the liver; next commonest is cancer of the liver; third commonest, tuberculous peritonitis. I am ruling out, of course, the ascites that merely forms part of a general dropsy, cardiac or renal. We do not talk of ascites if it is merely part of a general process along with dropsy elsewhere.

We have three causes that are common, cirrhosis, cancer and tuberculous peritonitis. There are rare causes. Solid fibroid tumors of the ovary sometimes are associated with ascites. Of course one gets it in connection with retroperitoneal and glandular tumors involving the root of the mesentery. I think however we can say that at least 95 per cent of all the cases of ascites will fall into one of the three groups named. In tuberculous peritonitis we get fever, slight general tenderness and spasm of the abdomen, and we should not get jaundice. The fact that we have jaundice leaves us with almost nothing to consider except the other two. He had had no stomach symptoms until very recently. Therefore probably he did not have the usual cause of cancer of the liver, namely, cancer of the stomach.

So from the history alone, without the physical examination, I am inclined towards cirrhosis. I mean to include all the types. For instance, subacute yellow atrophy is a form of cirrhosis for our purpose. That would go with ascites. Of course syphilitic and alcoholic are included.

We are not at all sure that he ever had pulmonary tuberculosis.

"He had gained twenty pounds in the past six months." That is a bad sign. Why? Because it is due to his dropsy. We are sorry to hear it.

He thought his present trouble was brought on by worrying. Many times that comes up in medicine. A person thinks that his disease is due to his worry, when really his worry is due to his disease.

The jaundice was slight. They were not even quite certain that it was there.

How do you suppose they found out that the diaphragm was high on both sides? They have not got the x-ray. How else could we find it out?

A STUDENT: By percussion.

Dr. Cabot: And how are they sure they have not got dullness above the diaphragm instead of below? We cannot be sure. We can make a pretty good guess if we can see the diaphragm go up and down. I think they made a good guess because they were pretty sure from what they had seen that there was fluid below the diaphragm. I think it is hard, except by x-ray, to be sure there is nothing above the diaphragm.

Slight prominence of the veins makes us think of some sort of cirrhosis with collateral circulation developed.

DR. FREMONT-SMITH: Does that "veins above and below the abdomen" mean above and below the umbilicus?

DR. CABOT: I do not believe it. I think they mean around the ribs and in the groins. I suppose most of you, like myself, have long been looking for the caput medusae and have never seen it. That is supposed to be radiating veins going out from the umbilicus. But in fact we see enlarged veins in cirrhosis in the places where they are suggested here, that is, around the limits of the abdomen.

"The intercostal spaces at the apices were a little narrow." I should like to know how they knew that. They could not have made a comparison with the size they were before, and how they could tell that he was not born with narrow intercostal spaces I do not see. When an x-ray man speaks of narrowed interspaces he always speaks by comparison with the other side, doesn't he?

DR. GEORGE W. HOLMES: Yes.

DR. CABOT: Here it seems to be referring to both sides.

"The abdomen was distended, heavy and tympanitic." Heavy? Who weighed it? I suppose they mean that it would fall over from side to side. And what about "tympanitic"? It ought not to be tympanitic all over. A tympanitic 20-centimeter-wide bubble stayed at the apex, but that means, of course, dull all around as it should be.

What have we so far for physical signs? We have evidence of ascites; that 20-centimeter bubble and the things that go with it prove that we have ascites, and that is all, so far as I see, that we have yet.

The reds went from four million to two million, so he must have lost a great deal while he was in the hospital.

The bromsulphthalein test is very good proof of organic disease of some kind in the liver.

The valuable thing in the abdominal fluid is the low gravity. I do not think the cytology of abdominal fluid has ever helped anybody to diagnosis, but the gravity does. Among the three causes for ascites that I gave, one has a high gravity,—tuberculous peritonitis,—and the other two have lower gravities, the difference between the other two not being distinctive.

DR. HOLMES: We have two films, one of the chest and one of the abdomen. We notice that there is dullness at both apices, that it is of a rather mottled character but quite dense, that it extends as low as the first rib, and that there is a shadow in the second interspace just below it. The markings that run down from these involved areas toward the hilus are somewhat increased. There is not much change in the lower part of the chest. The diaphragm is sharply outlined on both sides.

DR. CABOT: Is the angle on the right side of the diaphragm of any importance? It seemed to me as if it made rather a sharp angle. Is that anything?

DR. HOLMES: No, I think not. There is normally considerable variation.

The heart shadow is within normal limits.

The interpretation of such findings would be fibrotic change at both apices. The apices are probably retracted and scarred; there is evidence of healed tuberculosis.

DR. CABOT: Will you explain how the evidence shows that the process is not active?

DR. HOLMES: The density of the shadow and the presence of lines instead of spotting. But of course this is something of a guess. We want the temperature and the question of râles and other things before we give a definite opinion.

All over the abdominal film there is a general haziness which could be the result of underexposure but which could also be due to fluid in the abdomen. Fluid increases the density of the part examined; and from the history I should suppose that that was the case here. The kidney outlines are not visible and we cannot make out the edge of the liver or the outline of the spleen. Usually in a film of good quality it is possible to see the lower edge of the liver and occasionally the edge of the spleen. Attempts to determine the size of the liver and spleen by x-ray examination are not very successful because we get the diameter in only one plane. It is of interest to consider the presence or absence of calcification in the abdominal lymph nodes, because the question of tuberculosis has been raised. He shows no evidence of that kind. Calcified lymph nodes are usually more dense than bones and can be seen through bones. They are not constantly in position as other shadows may be.

DR. FREMONT-SMITH: What is the rather large circular area of decreased density?

DR. HOLMES: That is gas in the stomach.

DR. CABOT: Let us sum up the essentials. A man a little past middle age, who has had no important illness except possibly an early pulmonary tuberculosis of which we may be seeing the old results in the x-ray film. Otherwise his illness is a matter of a few months, and the complaints of that illness are all, I should say, such as might be due to his ascites. The physical examination shows ascites and essentially nothing else except a secondary anemia which we should expect if he had any of the types of liver disease which we believe he had. His low liver function test makes us surer than we otherwise should be that we have organic liver disease. He was tapped, so far as I know, only three times in all,—probably only twice. He died after not more than three taps. That has an important bearing. The great majority of cases of alcoholic cirrhosis with ascites are tapped a great many times, ordinarily twenty or thirty times. That inclines me toward the acute toxic type of cirrhosis, which is also suggested by the subacute diminution of liver dullness.

He is not much jaundiced. I do not understand why some cases of acute toxic hepatitis show so much more jaundice, have so much more bile in the stools and so much more ascites than others.

We certainly have to consider tuberculous peritonitis. Here is a man who has had evidence of pulmonary tuberculosis shown in the x-ray, who had been treated for it and who has fluid in the abdomen. He has a little fever, such as might go with tuberculous peritonitis. What have we against it? Three important facts. In the first place he has no local tenderness or spasm at all. Ordinarily peritonitis has acute tenderness. Tuberculous peritonitis ordinarily shows slight general tenderness, corresponding to the nature of the process. Nothing is said about that here. Another point which I think is of great importance is the low gravity of the fluid. I do not think we have ever had a case in this hospital with so low a gravity. A third point is the rapid reaccumulation of fluid. Usually it reaccumulates slowly; in tuberculous peritonitis often it does not reaccumulate at all. So it seems to me that we have strong evidence against tuberculous peritonitis.

What about the possibility of cancer? We can only say that after tapping, when the abdomen was lax, we felt nothing in the liver or anywhere else. If he has a cancer it ought to

be in the mesentery and presumably in the liver. The gravity of the fluid, the condition of the abdominal wall and the slight jaundice would be all right for cancer. I think the evidence against it is the rapidity of the death without evidence of tumor or metastasis.

So I think it is some type of cirrhosis. Between the alcoholic and the acute toxic type of hepatitis I think the facts mentioned are most important. He was tapped but twice and had a shorter course than the great majority of alcoholic cirrhoses do after the symptoms begin. Some of these cirrhoses are never found at all until postmortem, but when symptoms do occur they go on for a much longer period than this before death comes. So my conclusion is that this is the toxic type ordinarily called subacute yellow atrophy. Although the patient was not very yellow we believe that the liver will be.

A STUDENT: Isn't it rather a long course to be called acute?

DR. CABOT: Yes. Most cases of "acute" yellow atrophy are not acute. We began calling them acute when we knew rather little about this disease, which is the time when I got my terminology. The disease has become common in the last few years, and we have gradually learned that as we see them here there are more subacute and chronic cases than there are acute.

A STUDENT: What is the usual type of jaundice?

DR. CABOT: Usually they have more than in this case. Usually they would say "jaundice", not "slight" or "probable jaundice". That in itself is queer. That would go toward the diagnosis of portal or alcoholic cirrhosis, which often has no jaundice at all. So that is a point on the other side.

A STUDENT: Is there usually as little evidence of a definite toxic cause?

DR. CABOT: Yes; the cause of acute hepatitis toxic in origin is not found. That does not mean that it does not exist, but we do not generally find it.

A STUDENT: What other tests would you like to see in the record sheet—the icteric index?

DR. CABOT: Yes, that is a good point.

A STUDENT: Why the anemia?

DR. CABOT: The liver trouble itself. We seldom get a case without it.

A STUDENT: Is there any direct relationship between the relief of symptoms and the tapping?

DR. CABOT: They always get relief, so far as I know, because they are complaining and suffering just from the fluid, incommoded not merely by the lack of liver tissue but by the pressure of fluid on other organs.

A STUDENT: Would a perihepatitis make fluid accumulate faster than this?

DR. CABOT: No.

A STUDENT: I understand that cases of alcoholic cirrhosis have many, many taps. French suggested perihepatitis as a diagnosis in cases where there were not more than one or two taps.

DR. CABOT: I think we can say that is not so.

A STUDENT: If this is a cirrhosis of either the toxic or the chronic variety, would death be due to toxemia or anemia or both?

DR. CABOT: I should say toxemia. He has not enough anemia. I think he died of cholemia, whatever that means,—of the lack of liver function.

A STUDENT: Why did he have that high white count?

DR. CABOT: I cannot say. Very likely Dr. Mallory will say bronchopneumonia. They always say that. We cannot diagnose terminal bronchopneumonia. But I do not believe he had that when he had the white count.

A STUDENT: Is it uncommon to find tuberculous peritonitis with portal cirrhosis?

DR. CABOT: It is not very rare, but it is rare.

In summary then I am going to say that he has old healed tuberculosis of the apices, that he has atrophic liver disease, either alcoholic or subacute toxic, and I am going on the whole to swing to the latter, although several points have been brought out by questions favoring the former. On the whole there seems to me a little more evidence for the toxic type than for the alcoholic type.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Cirrhosis of the liver.

DR. RICHARD C. CABOT'S DIAGNOSES

Cirrhosis of the liver, subacute toxic type.
Healed pulmonary tuberculosis.

ANATOMIC DIAGNOSES

1. *Primary lesion.*

Cirrhosis of the liver, unclassified.

2. *Secondary or terminal lesions.*

Massive hemorrhage into the gastro-intestinal tract.
Ascites.
Splenomegaly, slight.
Tuberculosis of the left kidney and ureter.
Tuberculosis of the apices of both lungs.

3. *Historical landmarks.*

Emphysema.
Chronic fibrous pleuritis.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: We found a very definite old bilateral tuberculosis of the lungs, as Dr. Holmes predicted. We also found a very small cirrhotic liver weighing 810 grams. We did not find evidence of any very fresh necrotic process. I do not think it is possible

from the examination to estimate with any exactness the age of the process. The total story is six months, and it is possible that this picture could have been produced in six months. It is also possible that it may antedate that by a considerable time period. I do not think there was any marked change within the last few weeks.

The cause of his sudden exitus was a very common one,—bleeding from esophageal varices. The stomach contained a liter and a half of blood. Most commonly the patients vomit that or pass it by rectum and we are able to recognize it as a cause of death, but it is not infrequent for the final hemorrhage to result in death so suddenly that there is no overt evidence.

He also had complete destruction of the left kidney by a tuberculous process.

We wound up no better off ourselves than you are, and felt unable to classify the type of cirrhosis. I do not think it was alcoholic. I am inclined to think it was of the toxic type, but I think the process was of at least six months' duration rather than a more acute terminal affair.

CASE 18482

AN UNUSUAL ASSOCIATION OF TWO LUNG DISEASE PROCESSES

Medical Department

PRESENTATION OF CASE

Dr. David A. Young*: This is the case of a sixty-two year old white married paper hanger. The chief complaints were weakness and shortness of breath, very severe for the past three months.

The history goes back to a severe attack of bronchitis at the age of seven. Since then he had not been able to lead so active a life as most other people. He had however been able to work steadily until a year before admission. A year and a half before admission he noticed in doing strenuous work for a six weeks' period that he lost about twelve pounds and that his previous shortness of breath had progressed. For a year he had not done any work and could not regain his weight, though his appetite remained good. He had dyspnea with slight precordial pain on exertion. Two months and a half before he came in he began to have one cold after another. He had had cough which was never productive of bloody sputum, but there was some mucopurulent material in the mornings. He had been in bed a good deal of the time just before admission. He had lost considerable weight and was extremely weak and dyspneic. During this time two or three examinations of sputum at the State Board of Health were negative.

His mother died at forty-five of tuberculosis. Two siblings had died of tuberculosis.

*Senior interne on the East Medical service.

The past history is not contributory.

Examination showed an emaciated, dyspneic man in considerable distress. On the right side the lung was retracted and there was dullness to flatness with rather loud coarse râles. The breath sounds were absent or very much diminished. The heart was displaced to the right; the sounds could be heard only to the right of the sternum. The left lung was apparently clear except for one area of bronchial breathing posteriorly just beneath the scapula and anteriorly very much increased tactile fremitus and vocal fremitus just under the clavicle.

The white cell count was 17,750. The red cell count and hemoglobin were normal. The differential showed predominance of polymorphonuclears, only one mononuclear. The urine and stools were negative. A sputum examination showed no tubercle bacilli. No x-ray examination was done.

Within a week of entry the patient started to have chills without any change in his chart. Then his temperature went up and his respirations became labored. He became cyanotic and was put into an oxygen-tent. He died shortly afterwards, twelve days after entry.

Clinical Discussion

Dr. Young: At the second examination the sputum was loaded with tubercle bacilli, and a few were found at the third examination. The impression was that he had fibroid phthisis, with some question as to how much involvement there was on the left side. He was seen in the Thoracic Clinic, where sanitarium care was advised and collapse was not recommended. It was decided to proceed with recommendations for sanitarium care, when he suddenly became worse.

Dr. Frederick T. Lord: The finding of tubercle bacilli of course confirms the diagnosis beyond reasonable doubt. Between the possibility of tuberculosis and abscess one can say that this picture is more suggestive of a tuberculous process than of abscess because of the marked displacement of the mediastinum, the trachea and the heart in the absence of any definite indication of bronchial plugging. We do not see retracting processes of this extent in abscess as in tuberculosis.

As far as any collapse therapy is concerned, there is extensive disturbance on the right and below the scapula on the other side, which makes collapse therapy undesirable as a measure of relief.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Acute and chronic tuberculosis.
Myocardial failure.

ANATOMIC DIAGNOSES

Metastatic papillary adenocarcinoma of the lung, origin undetermined, possibly thyroid.

Chronic pulmonary tuberculosis.
Septicemia, streptococcus hemolyticus.
Acute fibrinous pleuritis, right.
Chronic fibrous pleuritis.
Anomalous middle lobe of left lung.
Arteriosclerosis: marked coronary; moderate aortic and renal.
Cholelithiasis.
Cholesterosis.
Prostatic hyperplasia.
Gastric erosion.

Pathologic Discussion

Dr. Tracy B. Mallory: At autopsy we found of course a very extensive tuberculosis. Miliary and conglomerate tubercles of varying age were scattered throughout the entire left lung and also the lower lobe of the right lung. The middle lobe of the right lung showed an extensive caseous tuberculosis, almost wholly destroying its structure. The most interesting thing was the right upper lobe, which had shrunken into a small spherical mass about the size of a tennis ball. It was absolutely hard and firm, containing no air at all, and was red-gray to black in color on cross section. The bronchus leading to this lobe showed no evidence of tumor. A very careful postmortem examination showed no suggestion of tumor anywhere else; but that lobe turned out to be entirely carcinomatous, and a type of carcinoma that I have never seen in the lung before.

Microscopically with this low power it looks like a well differentiated papillary adenocarcinoma such as one might see in the kidney. Throughout the entire lobe we have large glandular spaces separated from each other by fibrous bands and lined by a definite cuboidal epithelium. The process is homogeneous. The tumor is not growing expansively however, because in the center of the tumor mass we have a normal bronchus, and also scattered throughout the tumor are masses of carbon pigment and occasional miliary tubercles similar to those seen elsewhere in the lung. On the edges of the tumor one can see free masses of tumor cells apparently invading the alveoli. With careful study it certainly appears that the tumor is spreading down the respiratory tree from alveolus to alveolus in the form of rather loose masses of cells which shortly become firmly attached to the alveolar walls and in that way pick up their blood supply. Later papillary masses may develop.

The final section is from an area of very marked tuberculosis. In places there are left in this old dense fibrous scar small spaces lined with low epithelium. In some areas those spaces are quite indistinguishable from or else obviously belong to the tumor. In other areas they look less like neoplasm and very much like the persistent epithelial lined spaces that one finds in scar processes elsewhere in the lung. There is at least a strong suggestion that one can see transitions from these areas to definite tumor. In certain pathologic conditions a fair proportion of lungs show what appears to be epithelium lining the alveoli. In normal lungs the epithelium is not demonstrable, but when an alveolus begins to lose its respiratory function we very frequently see the appearance of well marked epithelium. Here for instance is a bronchus. To its right is a dense fibrous scar, and the alveoli backing up against that scar show a well marked epithelial lining. This extends a considerable distance away from the bronchus. Up here we have alveolar walls, but one cannot find any capillaries in any of these walls that are covered with epithelium. As soon as a capillary appears then immediately the epithelium stops.

Similar pictures can be seen from time to time in a variety of pathologic conditions. In an organizing infarct in one of our recent cases it is very obvious. In cases of organizing pneumonia I have seen it, also in a case which Dr. Means and I reported a few years ago of complete thrombosis of the pulmonary artery. Many of the alveoli of the lung on the right side presumably had lost respiratory function although they were not necrotic. They had received no blood supply from the pulmonary artery, and had been kept alive only by a much dilated bronchial artery, and in that lung fairly marked epithelialization of the alveoli resulted.

This case, it seems to me, is so different in character from the usual cancer of the lung that it raises the question whether it may not be a primary cancer of the alveolar epithelium. I do not think there is any proof, but I think the appearances are extremely suggestive. Of course the accepted theory at the present time is that there are no primary pulmonary cancers, that they all arise from the bronchial epithelium even when the primary site is pretty well out toward the periphery of the lung.

Dr. Frederick T. Lord: It is extraordinary with what frequency we are seeing malignant disease now, and in other countries neoplasms of the lung are being more frequently recognized. I suppose there is no way of being certain whether this is due to more frequent recognition or whether these neoplasms are increasing in incidence. Have you any idea?

Dr. Mallory: I think the fact that we are looking for them is probably a major factor. It is very hard to get conclusive statistical evidence one way or the other. I am sure it would have been very easy to miss this case, as it did not look like any picture of cancer of the lung with which I am familiar. If we had not been inquisitive because it looked peculiar we would not have thought of cancer in the face of such a well marked tuberculosis. I think the association is not at all common.

The New England
Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY under the jurisdiction of the

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SUBSCRIPTION TERMS: *$6.00 per year in advance, postage paid for the United States, Canada $7.04 per year, $8.52 per year for all foreign countries belonging to the Postal Union.*

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 8 The Fenway.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The New England Journal of Medicine, 8 The Fenway, Boston, Mass.

INTRACRANIAL INJURY AND DISEASE FROM THE ROENTGENOLOGIST'S POINT OF VIEW

IN patients with cerebral injury or suspected brain tumor the clinician usually turns to the roentgenologist for help in both diagnosis and localization. In the past he has often been disappointed, for most of the radiographic films have failed to reveal any signs of pathology. Recent results have been distinctly better and the report of the examination of nearly 1,000 patients during the year, 1931*, with over 1200 roentgen plates made by Dr. M. C. Sosman at the Peter Bent Brigham Hospital, leads to the conclusion that under expert hands much more can be gained by study of the shadows of tumors and defects of the cranial bones than had previously been considered possible.

Fractures still offer the greatest difficulty as they often lie in a position which cannot be thrown upon the screen and the patient, in some cases at least, cannot coöperate enough to allow the taking of a clear picture. Moreover, it is often wise in many cases to delay the roentgen study until the patient has recovered from the shock or hemorrhage incident to his injury. When that period is past, a careful examination from various angles will in many instances reveal the presence of fracture that would have been easily missed in the rush of a preliminary film made when the patient first entered the hospital.

The study of intracranial neoplasm, however, offers an entirely different situation. Here the patient can be taken repeatedly, if necessary, to the radiographic department and careful stereoscopic films can be obtained. The report of Dr. Sosman throws striking light on the efficiency of roentgenological examination made under good conditions. In a series of 363 patients who were under his observation a brain tumor was subsequently found in 157. The roentgen diagnosis, so far as localization was concerned, was surprisingly correct and even the type of tumor was predicted as the result of Dr. Sosman's investigations. This is a very high type of work and few have approached these figures for accuracy both in localization and diagnosis of the type of tumor. As he rightfully says: "It is astonishing that we are able to predict the location of the brain tumor in almost one-half of the cases and guess accurately as to its histological type in one-quarter of them. This is a very decided advance in diagnostic accuracy as compared with the results in previous years." These figures were not obtained after ventriculograms, where the percentage of positive diagnoses may be much higher. As a matter of fact, in 116 examinations for tumors of all types, correct localization was obtained by Dr. Sosman, after air had been injected into the ventricles, in 95 per cent. He correctly emphasizes that ventriculography gives very exact results when performed properly, although the method is associated with a definite surgical risk.

Certain types of tumors, such as the pituitary adenomas, show characteristic changes on the roentgen film and make the diagnosis comparatively easy. This is partially so of the meningiomas, where a localizing diagnosis can be made in about two-thirds of the cases and the histological diagnosis in one-third. In the acoustic neuromas the diagnosis is nearly always accurately made by the history and the physical examination, and the roentgen ray merely confirms this impression. In the largest group of tumors, the gliomas, a few may be located by the thinning of the bone directly over the tumor and a few more by displacement of the pineal gland shadow. About 20 per cent of them, moreover, can be located by their calcium content, which is often considerable.

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Chronic pulmonary tuberculosis.
Septicemia, streptococcus hemolyticus.
Acute fibrinous pleuritis, right.
Chronic fibrous pleuritis.
Anomalous middle lobe of left lung.
Arteriosclerosis: marked coronary; moderate aortic and renal.
Cholelithiasis.
Cholesterosis.
Prostatic hyperplasia.
Gastric erosion.

Pathologic Discussion

Dr. Tracy B. Mallory: At autopsy we found of course a very extensive tuberculosis. Miliary and conglomerate tubercles of varying age were scattered throughout the entire left lung and also the lower lobe of the right lung. The middle lobe of the right lung showed an extensive caseous tuberculosis, almost wholly destroying its structure. The most interesting thing was the right upper lobe, which had shrunken into a small spherical mass about the size of a tennis ball. It was absolutely hard and firm, containing no air at all, and was red-gray to black in color on cross section. The bronchus leading to this lobe showed no evidence of tumor. A very careful postmortem examination showed no suggestion of tumor anywhere else; but that lobe turned out to be entirely carcinomatous, and a type of carcinoma that I have never seen in the lung before.

Microscopically with this low power it looks like a well differentiated papillary adenocarcinoma such as one might see in the kidney. Throughout the entire lobe we have large glandular spaces separated from each other by fibrous bands and lined by a definite cuboidal epithelium. The process is homogeneous. The tumor is not growing expansively however, because in the center of the tumor mass we have a normal bronchus, and also scattered throughout the tumor are masses of carbon pigment and occasional miliary tubercles similar to those seen elsewhere in the lung. On the edges of the tumor one can see free masses of tumor cells apparently invading the alveoli. With careful study it certainly appears that the tumor is spreading down the respiratory tree from alveolus to alveolus in the form of rather loose masses of cells which shortly become firmly attached to the alveolar walls and in that way pick up their blood supply. Later papillary masses may develop.

The final section is from an area of very marked tuberculosis. In places there are left in this old dense fibrous scar small spaces lined with low epithelium. In some areas those spaces are quite indistinguishable from or else obviously belong to the tumor. In other areas they look less like neoplasm and very much like the persistent epithelial lined spaces that one finds in scar processes elsewhere in the lung. There is at least a strong suggestion that one can see transitions from these areas to definite tumor. In certain pathologic conditions a fair proportion of lungs show what appears to be epithelium lining the alveoli. In normal lungs the epithelium is not demonstrable, but when an alveolus begins to lose its respiratory function we very frequently see the appearance of well marked epithelium. Here for instance is a bronchus. To its right is a dense fibrous scar, and the alveoli backing up against that scar show a well marked epithelial lining. This extends a considerable distance away from the bronchus. Up here we have alveolar walls, but one cannot find any capillaries in any of these walls that are covered with epithelium. As soon as a capillary appears then immediately the epithelium stops.

Similar pictures can be seen from time to time in a variety of pathologic conditions. In an organizing infarct in one of our recent cases it is very obvious. In cases of organizing pneumonia I have seen it, also in a case which Dr. Means and I reported a few years ago of complete thrombosis of the pulmonary artery. Many of the alveoli of the lung on the right side presumably had lost respiratory function although they were not necrotic. They had received no blood supply from the pulmonary artery, and had been kept alive only by a much dilated bronchial artery, and in that lung fairly marked epithelialization of the alveoli resulted.

This case, it seems to me, is so different in character from the usual cancer of the lung that it raises the question whether it may not be a primary cancer of the alveolar epithelium. I do not think there is any proof, but I think the appearances are extremely suggestive. Of course the accepted theory at the present time is that there are no primary pulmonary cancers, that they all arise from the bronchial epithelium even when the primary site is pretty well out toward the periphery of the lung.

Dr. Frederick T. Lord: It is extraordinary with what frequency we are seeing malignant disease now, and in other countries neoplasms of the lung are being more frequently recognized. I suppose there is no way of being certain whether this is due to more frequent recognition or whether these neoplasms are increasing in incidence. Have you any idea?

Dr. Mallory: I think the fact that we are looking for them is probably a major factor. It is very hard to get conclusive statistical evidence one way or the other. I am sure it would have been very easy to miss this case, as it did not look like any picture of cancer of the lung with which I am familiar. If we had not been inquisitive because it looked peculiar we would not have thought of cancer in the face of such a well marked tuberculosis. I think the association is not at all common.

The New England
Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY under the jurisdiction of the

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SUBSCRIPTION TERMS: *$6.00 per year in advance, postage paid for the United States, Canada $7.04 per year, $8.52 per year for all foreign countries belonging to the Postal Union.*

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 8 The Fenway.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The New England Journal of Medicine, 8 The Fenway, Boston, Mass.

INTRACRANIAL INJURY AND DISEASE FROM THE ROENTGENOLOGIST'S POINT OF VIEW

IN patients with cerebral injury or suspected brain tumor the clinician usually turns to the roentgenologist for help in both diagnosis and localization. In the past he has often been disappointed, for most of the radiographic films have failed to reveal any signs of pathology. Recent results have been distinctly better and the report of the examination of nearly 1,000 patients during the year, 1931*, with over 1200 roentgen plates made by Dr. M. C. Sosman at the Peter Bent Brigham Hospital, leads to the conclusion that under expert hands much more can be gained by study of the shadows of tumors and defects of the cranial bones than had previously been considered possible.

Fractures still offer the greatest difficulty as they often lie in a position which cannot be thrown upon the screen and the patient, in some cases at least, cannot coöperate enough to allow the taking of a clear picture. Moreover, it is often wise in many cases to delay the roentgen study until the patient has recovered from the shock or hemorrhage incident to his injury. When that period is past, a careful examination from various angles will in many instances reveal the presence of fracture that would have been easily missed in the rush of a preliminary film made when the patient first entered the hospital.

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degree of efficiency in Dr. Sosman's department,—a level which should be the aim of every roentgenologist. Such a standard is difficult to attain in general practice, for in most instances the plates must be taken under somewhat unfavorable circumstances and the chances for verification of the diagnoses are usually small. Nevertheless, an approach to Dr. Sosman's brilliant results should be attempted, by increasing care in both the technique of taking and the reading of the plates.

THE FINAL REPORT OF THE COMMITTEE ON THE COSTS OF MEDICAL CARE

THE Committee on the Costs of Medical Care was organized five years ago "to study the economic aspects of the prevention and care of sickness, including the adequacy, availability and compensation of the persons and agencies concerned". The Committee has produced twenty-six main reports on a variety of subjects, and numerous minor contributions. Its Final Report, which was made public November 29, has been awaited with great interest by the profession and the general public. Whereas the technical reports and miscellaneous contributions just referred to, dealing with such subjects as the costs of medical care to families, the facilities and expenses for medical care in different sized communities, the incomes of physicians, the working of various existing projects in organized medical service, have been the product of the Committee's research staff, reviewed and edited by the Committee, the Final Report was the direct responsibility of the 48 members of the Committee. In its 200 pages the chief findings of all the Committee's studies are summarized, and a variety of suggestions and recommendations are presented for dealing with the problems of medical care.

The composition of the Committee gives significance to its Report. Of the 48 members, 24 were physicians; of these, 13 being private practitioners and 11 in public health work, universities, or officials of organizations. There were three dentists, two nurses, six economists and sociologists, three non-medical men concerned with public health work, two social workers, and eight "representatives of the general public". The Chairman was Dr. Ray Lyman Wilbur, former President of the American Medical Association. The support of the Committee came almost entirely from foundations, nine of which contributed a total of over $750,000 from the beginning of the Committee in 1927 to its disbanding in 1932.

While primary interest will attach to the Committee's recommendations, some review of the facts and findings should be given. A summary of an extensive group of studies, cannot be adequately condensed into an article of magazine length. As a report of this kind may influence discussion and action in medical circles, it should be read in full.

The first of the six chapters of the Report describes the needs and problems of medical care from the points of view of the professions furnishing it and of the public, as revealed in the Committee's fact-finding studies. The second chapter lays down six essential elements to any satisfactory medical program:

1. Safeguarding quality of service and personal relationship between physicians and patients.
2. Provision for meeting the people's real needs for medical care.
3. Provision of service on financial terms which a substantial majority of the people can and will meet, either through individual or collective resources.
4. Shift of emphasis from cure to prevention.
5. Selection of competent practitioners.
6. Adequate payment of practitioners and agencies.

In chapters three and four there are briefly described a series of plans and experiments now under way under professional, lay, or joint sponsorship, in group practice, voluntary insurance, hospital and clinic services, organized medical care in rural areas, etc., with the advantages and disadvantages of each plan briefly stated. The community medical center as a comprehensive organization for furnishing medical service in the future is described. The fifth chapter gives the Committee's specific recommendations, and the final chapter emphasizes the need for action, and some practical immediate steps. A minority report signed by nine physicians follows, a second minority statement by two dentists, and two individual dissenting statements, each by a lay member.

The general findings of the Committee may be summarized thus. A large amount of medical care is not secured by persons who need it, particularly in the lower income groups. One of the chief studies sets forth the sickness occurring, medical care rendered, amounts charged and paid among 9,000 families during a twelve-month period, and that while the physical needs for care are substantially the same among all income groups, half the families with incomes of less than $2000 a year received no medical attention of any kind either from practitioners or from agencies, whereas among families with incomes of $5000 to $10,000, the proportion receiving no medical attention was only one-fourth, and was only one-seventh among families with incomes of over $10,000. Except in a few localities where there is a shortage of physicians and other facilities, the causes of failure to receive care are due partly to ignorance on the part of the people, but largely to inability to pay. The conclusion is also stated that this

inability to pay is not due as a rule to unreasonable charges by physicians, but chiefly to the uneven and unpredictable manner in which illness occurs. The geographical distribution of practitioners and hospitals is also very uneven, many rural areas being insufficiently supplied.

In 1929 the total expenditures of the people of this country for the care and prevention of sickness amounted to a little over three and one-half billion dollars. This however was less than four per cent of the total national income for 1929. Since it was estimated that about six times that amount was spent for articles or services which might be regarded as luxuries or comforts, the Committee draws the conclusion that the nation as a whole is quite able to bear the costs of sickness. It is pointed out, however, that these costs do not fall upon the people as a whole.

> "The costs of medical care fall very unevenly on different families in any one year and on the same family in different years. It is impossible to budget such costs accurately on an individual family basis. For the low-income families, who constitute the great majority of the population, not only are present expenditures uneven and unpredictable, but they are also much too low in total to provide adequate medical service. The population as a whole, however, except in 'hard times' can pay for adequate service without hardship. In fact, to a certain extent good medical service pays for itself in prevention of disease and in increased efficiency and productive ability."

The physician is shown to be directly responsible for only a fraction of the costs of sickness. Of the total expenditure of $3,650,000,000, the fees received by practicing physicians were estimated as only $1,100,000,000, or barely thirty per cent. Hospital services ($850,000,000); expenditures for drugs, medicines and appliances ($715,000,000); dentists ($450,000,000); private duty nurses, graduate and practical ($200,000,000); secondary and sectarian practitioners ($200,000,000); and public health work ($120,000,000) make up nearly all the rest of the total.

The gross income of the average practicing physician in 1929 was found to be about $9,000, but this net income was only about $5,300 since the professional expenses of private practice require on the average about forty per cent of gross income. The incomes of specialists are found to average two and one-half times those of the general practitioners. It was estimated that in 1929, 40,000 of the 70,000 general practitioners of the country were earning a net income of $2500 or less. Figures for the incomes of the population are also presented for 1928, when approximately fifty per cent of all families with two or more members had annual incomes of less than $2000; thirty-six per cent had incomes of between $2000 and $4000; and less than three per cent of the families had incomes of $10,000 and over. The Report says:

> "The primary reason why the costs of medical care cause complaints is that the costs are uneven and unpredictable. The disparity for a large majority of families between *average* incomes and *actual* incomes is matched by an equal or greater disparity between average and actual costs of medical care. This was clearly indicated in the Committee's comprehensive study of the costs of medical service to 9,000 white families. Of the families with annual incomes under $1,200, 79% belonged to the group in which charges for medical service were less than $60 a year. At the other extreme, 1% of these low income families were charged $500 or more for their medical service during the year, and 2.5% were charged $250 to $500."

Among families with incomes of $1200 to $2000, over three-fifths of the total costs of sickness fell upon less than one-fifth of the families. "The individual family derives no comfort from the knowledge that the *average* cost of medical care is not excessive for families with the *average* income." . . . "On the present fee-for-service basis, it is impossible for 99% of the families to set aside any reasonable sum of money with positive assurance that that sum will purchase all needed medical care."

Of the $715,000,000 spent yearly for drugs, medicines and appliances it is estimated that over $300,000,000 goes for unnecessary or harmful commodities, chiefly "patent medicines"—a waste due to popular ignorance, together with advertising and other sales efforts of the drug business. Only about $260,000,000 is spent for prescriptions dispensed by physicians. The forty per cent overhead of private practice, the wastes due to unused beds and other facilities in general hospitals, the expenditures for unscientific and irregular practitioners, taken together with the amount wasted on medicines, make a total of some three-quarters of a billion dollars annually of misdirected expenditure by the people.

In addition to the often inadequate, unstable and unevenly distributed incomes of the medical profession previously referred to, other difficulties in present medical practice are summarized as follows: "the lack of coördination between general practitioners and specialists; the lack of adequate supervision and control over the quality of some medical care, especially the lack of any effective control over specialization; the enforced idleness of many physicians because of lack of patients, which has been estimated as nearly one-third of their potential working time; the difficulty experienced by patients in choosing qualified physicians; the unnecessarily large expenditure for overhead costs made by practitioners in individual private practice; and the increasing complexity of medical service which necessitates the use of ever-

multiplying equipment, as well as a larger number and variety of subsidiary personnel."

Among other facts of interest in the Report are those indicating the inadequate amount of preventive work, the grave unemployment among private duty nurses even before the depression, the situation in dental care, the problems of hospital service, and the contrasts between different sized communities and different sections of the country in the availability of medical facilities and in the amounts expended for medical service.

The majority Report of the Committee, in which more than two-thirds of its total membership and all but nine of the 24 physicians concur, presents the following five general recommendations to deal with the needs and problems revealed by its investigations:

1. "The Committee emphasizes the value of group organization for service, and recommends that when possible the medical professions, including physicians, dentists, nurses, pharmacists, and other associated personnel, be organized into groups preferably around a hospital for rendering complete home, office, and hospital care, including both preventive and curative services."
2. "The Committee recommends the extension of all basic public health services—whether provided by governmental or non-governmental agencies—so that they will be available to the entire population according to its needs. This extension requires primarily increased financial support for official health departments and full-time trained health officers whose tenure is dependent only upon professional and administrative competence."
3. "The Committee recommends that the costs of medical care be placed on a group payment basis, through the use of insurance, through the use of taxation, or through the use of both these agencies. Cash benefits, if and when provided, should be separate and distinct from medical services."
4. "The Committee recommends that the study, evaluation, and coördination of medical service be considered important functions for every state and local community, that agencies be formed to exercise these functions, and that the coördination of rural with urban services receive special attention."
5. "In the field of professional education, the Committee makes the following recommendations: (A) That the training of physicians give increasing emphasis to the teaching of health and the prevention of disease; that more effective efforts be made to provide trained health officers; that the social aspects of medical practice be given greater attention; that specialties be restricted to those specially qualified; and that postgraduate educational opportunities be increased; (B) that dental students be given a broader educational background; (C) that pharmaceutical education place more stress on the pharmacist's responsibilities and opportunities for public service; (D) that nursing education be thoroughly remoulded to provide well-educated and well-qualified registered nurses; (E) that less thoroughly trained but competent nursing aids or attendants be provided; (F) that adequate training for nurse-midwives be provided; and (G) that opportunities be offered for the systematic training of hospital and clinic administrators."

Attention will center especially on recommendations 1 and 3, for group practice and group payment. The chief minority report, signed by eight physicians of whom seven are private practitioners, does not deal with the body of facts which, reported in the Committee's studies, indicate in the opinion of the majority the need for distributing the costs of medical care by group payment, and for extending group practice. The minority report holds that group payment is, in principle, undesirable, though it admits its applicability in a limited way. Group practice is regarded by the minority as applicable chiefly to the specialties and not to general medical service, and as tending to promote unfair competition. The minority holds that serious dangers to medical standards and traditions will be brought by group practice and by the application of the insurance principle to sickness. They recommend that county and state medical societies should prepare plans for dealing with the problems of medical care, holding that "any plan for the distribution of medical costs" . . . "must be under the control of the medical profession" and meet seven other conditions. No concrete plan to operate under the auspices of a medical society is presented.

The minority endorses experiments "to assist the people in dealing with economic aspects of sickness" with methods that can "rightly be fitted into our present institutions and agencies without interfering with the fundamentals of medical practice". The only definite proposals made are that chronic disease be treated for an annual estimated fee, instead of on a fee-for-service basis; that "government competition in the practice of medicine be discontinued" and that "government care of the indigent be expanded with the ultimate object of relieving the medical profession of this burden". The recommendations of the majority report in respect to education, public health work, and the coördination of medical service, are in substance endorsed. Both minority and majority groups agree that high standards of service and the personal relationship between physician and patient must be preserved in any satisfactory form of medical practice. The majority report declares that these essentials can be preserved in group practice, and sets forth certain standards which they suggest professional associations should develop and assist in enforcing. In well-organized group clinic practice, the "overhead" is reduced to twenty or twenty-five per cent as compared with an average of forty per

cent in individual practice. Majority and minority agree that control of group practice or of sickness insurance by commercial agencies is undesirable and should be vigorously combated. The Committee recognizes that some of its recommendations involve what is called contract practice, but says "In the opinion of the Committee, the existence of contract practice is evidence of an effort on the part of the people and the profession to develop service on an annual payment basis and its frequent failure to meet needs has been due to inadequate control of quality of service and to destructive competition."

Both majority and minority groups point out that contract practice *per se* is not regarded as unethical by the medical profession, but is only unethical under certain conditions. The minority group says "the evils of contract practice are widespread and pernicious" and criticizes the studies of the Committee as showing only the favorable aspects. The majority report on the other hand believes that the dangers of contract practice can be controlled, that all the Committee's recommendations concerning insurance and other forms of group payment "can be administered in accordance with high standards of professional service and with adequate compensation for practitioners and hospitals". Examples are presented which in the opinion of the majority of the Committee demonstrate this. The majority holds that the personal relation between physician and patient can be maintained under group practice and insurance payment and declares that unfair competition arising from the extension of group practice or group payment can be controlled by such measures as:

> "(a) Provision of medical service in increasing proportions by organized non-profit groups with community backing and control.
>
> "(b) State regulation of the finances to assure actuarial soundness.
>
> "(c) The formulation of general standards and policies and the arbitration of difficulties by the state medical and dental societies or by an officially appointed medical board nominated by the societies."

Under its two main recommendations of group payment and group practice, the majority Report proposes a number of specific steps, chief among which are the following:

> *Voluntary Coöperative Sickness Insurance.* "The Committee recommends that organized groups of consumers unite in paying into a common fund agreed annual sums, in weekly or monthly instalments, and in arranging with organized groups of medical practitioners, working as a private group clinic, a hospital medical staff or a community medical center, to furnish them and their families with virtually complete medical service. By 'organized groups of consumers' the Committee means industrial, fraternal, or other reasonably cohesive groups."

It is not recommended that such sickness insurance be undertaken by insurance companies, but by non-profit groups of the persons directly concerned. Such insurance cannot be economically sold to individuals, but must be arranged with already organized groups of persons.

> *Voluntary Hospital Insurance.* "The Committee recommends that, in the absence of a more comprehensive plan, general hospital service, not maintained by taxes or designed primarily for the wealthy, should be provided wholly or in part on a voluntary insurance basis, individuals or groups in the community paying agreed annual sums and receiving hospitalization when needed without further charge. Such plans will be of wider social benefit if they cover professional fees for hospitalized illness, as well as the charges for hospitalization itself."

Numerous examples of both voluntary coöperative sickness insurance and hospital insurance are referred to in the Committee's report, and some of them have been described in detail in special studies by the Committee or other agencies, as the community sickness insurance plans in Roanoke Rapids, North Carolina, and Baton Rouge, Louisiana, and the plans furnishing medical care on an annual payment basis by a number of private group clinics in the Central and Far West. Hospital insurance plans covering hospital charges only and not professional fees are reported from several institutions and appear to be now under consideration by many more.

Several recommendations relate to the use of tax funds for medical service. The medical care of the indigent and necessitous are, in the opinion of all sections of the Committee, a proper charge upon government funds, and it is particularly recommended that the practitioners as well as the agencies which provide such service should be properly remunerated. The Committee recommends the extension of policies now existing in many parts of the country,

> "that, where hospital facilities are lacking or inadequate, cities and counties use tax funds to provide hospital service, either through the construction of new hospitals or the extension of existing, well-managed institutions. Practitioners in such hospitals should be remunerated by the patients or by the community. In communities which are adequately supplied with hospital service, the Committee recommends that local and state tax funds be used to pay voluntary, non-profit hospitals which maintain good standards, to reimburse them for all or part of the costs of service to patients who cannot meet their own expenses and who are not included in insured groups."

Adequate tax appropriations for medical care of patients with tuberculosis, mental disease,

venereal disease, arthritis and other chronic conditions, are recommended when necessary. The extension of public health work, now inadequately supported in large sections of the country is strongly recommended. It is pointed out that where a voluntary health insurance plan is developed in the community, the care of those persons too poor to make the periodical payments might be met by tax grants so far as necessary to bring the costs for these low income families within their means.

The grave deficiencies of medical service in many rural areas were reported upon in several special studies by the Committee, one of which described the successful operation in Saskatchewan and Manitoba of a plan of salaried physicians paid for mostly from taxes and furnishing medical service to all the residents of the district. The Committee recommends

> "that rural or sparsely settled areas, where suitable medical service is not now obtainable at a reasonable cost, should employ salaried physicians to furnish general medical service to residents of the area. Where the economic condition of the community permits hospital service, public health nursing, dentistry, pharmacy, and occasional visits of specialists may be provided on the same financial basis and in coördination with the physicians' work. For the support of a local hospital, and, in certain instances, for other services, it will usually be desirable, even necessary, for two or more counties to join forces. Such a hospital may become a small medical center and should affiliate, if possible, with a large nearby general hospital or community center. Where only one physician is available in the area, he may also be the local health officer."

The majority also recommends that in rural areas and small towns, county medical societies "establish clinics to provide care for persons unable to pay the current fees of private practitioners. These clinics should be paid by the county or city authorities reasonable sums for their services".

Both majority and minority groups endorse the extension of private group clinics and of pay clinics on a non-profit basis for persons of moderate means, though the minority report gives these endorsements with certain reservations. "Middle-rate plans" of hospital service, such as the Baker Memorial Hospital in Boston, are endorsed by both majority and minority sections, and also the extension of opportunities to physicians to have office hours and facilities for private practice with ambulatory patients in the buildings of a local hospital. The extension of organized nursing service and the fuller use of subsidiary personnel to aid the physician or dentist, and the extension to faculty members of medical service now furnished to students by many colleges and universities, are among other recommendations of the majority report.

The majority of the Committee regards the most important forward step to be the development of group practice as a means of bringing the form of medical practice into line with the requirements of modern medical technology, with its high degree of specialization, its complex apparatus, and its need for integrating specialists with one another and with general practitioners.

A number of the recommendations, and several plans now in operation and described in the fourth chapter of the Report involve a combination of group practice and group payment. This combination when fully developed, becomes the *community medical center*, to which the whole third chapter of the Committee's Report is devoted. Immediate practical steps toward this complete organization are also suggested. "Existing hospitals may become community medical centers by (1) including general practitioners as well as specialists on their staffs and providing office space for them, (2) organizing the staff as a professional group complying with the essentials of satisfactory medical service set forth in Chapter II, and (3) accepting responsibility for furnishing complete medical service for the local population or for some section thereof. This need not interfere with the reception of other patients."

A certain number of the Committee signing the majority Report hold that health insurance should be made compulsory. European countries have generally taken this step in order to bring in the large number of persons who would not enter a voluntary system. Most of the members who signed the majority report, however, while "aware of the limitations of coverage and the possible difficulties of voluntary health insurance, nevertheless believe that the ultimate results will be far better if experience with actuarial and administrative details, and above all the evolution of group practice units capable of rendering rounded medical service of high quality, precede the adoption of any compulsory plan by a state as a whole".

"The maintenance of the quality of medical care is fundamental. Good service to the sick is worth what it costs; poor service is likely to be worth little or nothing."

It will be observed that the Committee on the Costs of Medical Care proposes no panacea, but a number of recommendations, some far-reaching in character, others limited in scope though regarded as useful for certain purposes. Some are presented as capable of immediate adoption or extension, others involve a longer view. Both minority and majority groups unite in emphasizing the need of coördinating the numerous vocations and agencies which now enter into medical service. Permanent local and state coördinating agencies are recommended, and in addition the following proposal which will be of special interest to medical men.

"*Temporary Professional Groups with Lay Participants.*—In order to initiate a progressive program for cities, counties, or states, the appropriate medical, dental, nursing, and pharmaceutical societies should appoint committees to ascertain the facts regarding the provision of medical service, to study the various possibilities for extending the service, and to prepare local or state plans accordingly. To provide a full and balanced view of problems and needs, to contribute administrative experience, and to give added weight to recommendations, such committees should include informed lay persons as associate members, or should establish coöperative relations with representatives of appropriate public organizations, such as community chests.

"The community may properly look to its physicians, dentists and other persons who have full-time interest in the problems of medical economics to furnish dynamic leadership in community planning. It is of paramount importance that the interest and knowledge of the professional groups be engaged, at an early stage, in constructive, practical efforts, rather than in criticism of the plans of others."

The United States is said to be the only country in the world in which a substantial group representing the professions concerned with medical care have united with a group of social scientists and members of the general public in a careful study of the problems and needs of the situation. The subject is one in which there will be divergence on some points, but there can hardly be any difference of opinion that the present situation in medical service is neither satisfactory to the public nor to the profession; that many trends in economic life and in the scientific progress of medicine itself compel substantial changes; and that changes will be more advantageous to all concerned if made as a result of deliberate, purposeful and coöperative action.

An answer must be given to one important question and that is: Will organized medicine take its place in the solution of the problems now before this country respecting medical service to all the people?

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Branch, Charles D. M.D. University of Michigan Medical School 1930. Interne, Surgery, Lakeside Hospital, Cleveland, Ohio. Address: Lakeside Hospital, Cleveland, Ohio. Associated with him are

Cutler, Elliott C. M.D. Harvard University Medical School 1913. F.A.C.S. Moseley Professor of Surgery, Harvard University. Surgeon-in-Chief, Peter Bent Brigham Hospital. Address: Peter Bent Brigham Hospital, Boston. And

Zollinger, Robert. M.D. Ohio State University College of Medicine, 1927. Resident Surgeon, Peter Bent Brigham Hospital. Address: Peter Bent Brigham Hospital, Boston. Their subject is "Experiences with Encephalography." Page 963.

Bigelow, George H. A.M., M.D. Harvard University Medical School 1916. Doctor of Public Health, Harvard 1921. Prior to appointment in Massachusetts Department of Public Health acted as Medical Director, Antioch College, Yellow Springs, Ohio, and Director of Clinic of the Cornell University Medical College. Appointed Director of Division of Communicable Diseases, Massachusetts Department of Public Health 1924. Appointed to present position as Commissioner of Public Health for Massachusetts, 1925. Address: State House, Boston. Associated with him is

Lombard, Herbert L. A.B., M.P.H., M.D. Bowdoin 1915. Director, Division of Adult Hygiene, Massachusetts Department of Public Health. Address: State House, Boston. Their subject is "Economics of the Massachusetts Cancer Program." Page 972.

Stone, Simon. M.D. Tufts College Medical School 1930. Assistant Physician, N. H. State Hospital, Concord, New Hampshire. His subject is "Chronic Progressive Chorea." Page 974. Address: New Hampshire State Hospital, Concord, New Hampshire.

Waite, Frederick C. B.Litt., A.M., Ph.D. Assistant in Anatomy, Rush Medical College 1900-1901. Assistant Professor of Histology and Embryology, Western Reserve University 1901-1904. Associate Professor, Western Reserve University 1904-1906. Professor of Histology and Embryology, Western Reserve University 1906-. His subject is "The First Sectarian Medical School in New England, at Worcester (1846-1859), and Its Relation to Thomsonianism." Page 984. Address: Western Reserve University, Cleveland, Ohio.

OBITUARY

HENRY P. WALCOTT

With the death of Dr. Henry P. Walcott another name is added to the roster of citizens who through their distinguished service have made Massachusetts prominent among the states. We are probably too close to him to judge effectively of the relative distinction of his contributions in such diversified fields as education, medicine, economics, horticulture, hospital administration, sanitation and hygiene. But it is perhaps safe to say that he is most frequently thought of in connection with his work for Harvard University, the Massachusetts General Hospital, and the State Board of Health. While physically, factually, technically and socially

the fields represented by these three of his major endeavors grew greatly during his ministration, perhaps in the third, that of the public health, there was the greatest metamorphosis because it was so pitifully meagre when he took it up and so rich, in large part due directly to him, when he put it down.

Knowing him personally only in his last decade, with his catholic interests, his penetration that cut away sham, his remarkable memory, his nice sense of values, and his delight in the humorous, it is pleasant to picture him impatient at twenty-three to serve in the Civil War, so that he left Harvard that he might the sooner graduate in medicine from Bowdoin. Then war service, study abroad, and practice in Cambridge. Then began his great cumulative galaxy of services to University, State and Nation, from which generations yet to come will imperceptively profit.

When Dr. Walcott was thirty-one, the first state board of health in this country was organized. He said that at this time, he reiteratingly told his friends of the enormous significance of the classical study by Lemuel Shattuck until they shunned him through boredom. This study, however, did not determine this important step in government but rather the fortuitous circumstance that the wife of the then Lieutenant-Governor was interested in a Young Ladies Finishing School in Pittsfield that, through chance, was visited by typhoid fever. He felt it somewhat heartening that the relatively irrelevant rather than the significant played such an important part even then.

In the thirteenth year of this new Board of Health (1882) he became a member and served for thirty-three years, twenty-nine of them as chairman. What service that was! With no precedent for guidance, in an atmosphere of budding science and hardy pseudo-science, with the constant demands of special interests, the Board and the whole field of public health might have become a by-word and a laughing stock. But no, the Board gave to Massachusetts and the world a standard of thoughtful, disinterested, factual service which we of today may well strive mightily to emulate.

Dr. Walcott liked to talk appreciatively of Ben Butler, with whom he achieved more intimacy than with any other of the host of governors under whom he served. In discussing the political pressure to appoint incompetents, he would remember with a chuckle one governor who entered office with a list of persons to fill every possible vacancy that might occur during his term, so that whoever came to plead for a friend came "just too late".

Today we refer to statesmen as those looking forward to the public interest five, ten or even fifteen years hence, yet Dr. Walcott, also on the Metropolitan Water and Sewer Board, was among those giants who for two generations hence built a water supply, and the present expansion found its work good. Surely such service is the essence of statesmanship.

On November thirteenth in the New Memorial Chapel at Harvard, simple services were held in honor of the passing of Henry Pickering Walcott. Through the clear windows of the north could be seen the Art Museum, Memorial Hall and other buildings that had grown old in his lifetime. It was the first funeral in a chapel consecrated to the spirit of service. Thus, again, was the building, so recently opened, rededicated through the fine spirit of so magnificent a public servant. G. H. B.

MISCELLANY

THE REPORT OF AN ABRUPT RISE IN THE INCIDENCE OF CANCER

Dr. Louis I. Dublin in the *Statistical Bulletin of the Metropolitan Life Insurance Company* sets forth that so far as the statistics of that company are concerned it has been shown that there has been an unprecedented rise in the mortality from cancer in 1932, even exceeding that in 1931 when the increase amounted to 7.4%. This year up to the end of September there has been a further increase of 9.6%. Dr. Dublin states that instead of the persistent but slow rise experienced for years, we now have this sharp acceleration, with the probability that, by the end of 1932, we shall find the cancer mortality rate to have increased three-quarters as much in two years as it did in all the preceding twelve years back to 1919. This is only partly due to a change in the relative age distribution of policyholders of this country, whereby a larger proportion is now in those ages where the rate is highest. The fact exists, however, that no similar increases have been recorded for other diseases which have their maximum mortality in the older ages. The increase in cancer mortality both in 1931 and 1932 affected both white and colored policyholders.

MORTALITY RATES

Telegraphic returns from 85 cities with a total population of thirty-seven million for the week ending November 12, indicate a mortality rate of 10.3 as against a rate of 11.0 for the corresponding week of last year. The highest rate (16.9) appears for Washington, D. C., and the lowest (4.9) for Flint, Mich. The highest infant mortality rate (15.8) appears for Wilmington, Del., and the lowest for Erie, Pa., Flint, Mich., Kansas City, Kans., Lynn, Mass., New Haven, Conn., San Diego, Calif., Schenectady, N. Y., Springfield, Mass., and Tacoma, Wash., which reported no infant mortality.

The annual rate for 85 cities is 11.0 for the forty-five weeks of 1932, as against a rate of 11.8 for the corresponding period of the previous year.—*Bureau of the Census.*

CORRESPONDENCE

CORRECTION OF CHIROPRACTIC PETITION VOTES

November 21, 1932.

Managing Editor,
The *New England Journal of Medicine,*

In your interesting editorial in the issue of November 17, entitled "Massachusetts Has Spoken," and relating to the deserved rejection on November 8 last of the petition for special privilege cult legislation, an error appeared in your listing of the vote of Lawrence, which if not corrected, would lead your readers to think that our city did not stand shoulder to shoulder with her sister cities of the Commonwealth in rejecting this proposed unwise legislation.

Your record of 6,854 "yes" votes and 5,972 "no" votes should have been printed as, 6,944 "yes" votes and 7,244 "no" votes, according to the official advices.

The physicians and their allies, other intelligent citizens, of Greater Lawrence, which includes the towns of Andover, North Andover, and Methuen, following the leadership of the Essex North District Medical Society, of which they are a part, carried on a campaign of education with gratifying results.

It may be of interest to note the following recorded facts respecting the votes cast in these four communities:

	Yes	No
Lawrence	6,944	7,244
Andover	888	1,959
North Andover	724	1,014
Methuen	2,214	2,126
Totals	10,770	12,343

Respectfully,
J. FORREST BURNHAM, M.D.
567 Haverhill Street, Lawrence.

November 22, 1932.

Editor, *New England Journal of Medicine,*

Result of the vote on the Chiropractic Bill for Beverly as published in the *New England Journal:*

Yes	6,073
No	4,787

Official figures as obtained from the City Clerk's office:

Yes	1,673
No	4,787

Further comment not necessary!

R. E. STONE, M.D., *Secretary*
Essex South District Medical Society.

RECENT DEATH

BROWNE — PERCY G. BROWNE, M.D., a prominent physician and surgeon, formerly of Boston, died November 20 at his home in East Bridgewater following an illness of several months. Dr. Browne was born in Boston sixty-three years ago, the son of Gilbert and Anna R. (Harper) Browne, and a descendant of Richard Browne, who settled in Newbury in 1635. He married Gertrude W. Gove of Winthrop on July 1, 1904. Dr. Browne was graduated from Harvard College and Boston University Medical School. He later served as professor of thoracic diseases at the medical school. He was a member of the staffs of the Massachusetts Homeopathic Hospital, Westboro State Hospital and Emerson Hospital. During the World War Dr. Browne served as a major. He was a member of the Army and Navy Club of Boston and St. John's Lodge of Masons of Boston. He is survived by his widow.

NOTICES

CLINICS IN MEDICINE AT PETER BENT BRIGHAM HOSPITAL

On Thursdays at 3:30 P. M. in the Amphitheatre of the Peter Bent Brigham Hospital, Dr. Henry A. Christian, Hersey Professor of the Theory and Practice of Physic, Harvard, and Physician-in-Chief, Peter Bent Brigham Hospital, will give a series of clinics which members of the medical profession are cordially invited to attend. The next clinic will be given on December 8.

Physicians and medical students are also invited to attend ward rounds of the Medical Staff of the Peter Bent Brigham Hospital held from 10-12 o'clock on Saturdays, as well as a clinical-pathological demonstration immediately following these rounds.

WORCESTER CANCER CLINIC*

PROGRAM

Worcester, December 7, 1932

10:00 A. M. Gage Hall, Memorial Hospital, Worcester.

Clinic limited to 12 selected cases of cancer.

Clinic conducted by the Worcester doctors.

Discussions by Dr. Frank E. Adair, New York, and Dr. Henry K. Pancoast, University Hospital, Philadelphia.

11:00 A. M. Lectures by: Dr. Frank E. Adair, "Clinical Manifestations of Early Malignancy of the Breast." Dr. Henry K. Pancoast, "Radiation in Cancer."

12:30 P. M. Luncheon ($1.00)—Bancroft Hotel.

For doctors, their wives, social workers, educational groups, and other interested persons.

Dr. George H. Bigelow, Commissioner, Massachusetts Department of Public Health, will speak.

2:00 P. M. Bancroft Hotel.

Public meeting, with addresses by Dr. Adair and Dr. Pancoast.

"Advances in Cancer" by Dr. Henry K. Pancoast.
"Cancer Education" by Dr. Frank E. Adair.

*An invitation to Staffs of the State-aided Cancer Clinics and physicians of the Worcester District Medical Society and others.

MASSACHUSETTS MEDICAL SOCIETY

COMMITTEE ON PUBLIC EDUCATION

The weekly broadcast, sponsored by the Committee on Public Education of the Massachusetts Medical Society and the State Department of Health, may now be delivered at the WBZ studio in Springfield. This offers the opportunity of joining in this work to the Fellows in the western part of the State. All Fellows are cordially invited to submit ten-minute papers to the Committee. General suggestions to be followed in the preparation of these papers may be had upon application to the Committee.

DR. DWIGHT O'HARA, 8 The Fenway, Boston,
Chairman.

RADIO HEALTH MESSAGES

DECEMBER, 1932

Sponsored by the Public Education Committee of the Massachusetts Medical Society and the Massachusetts Department of Public Health.

Courtesy WBZ. Tuesdays, 4:15 P. M.

December

6 Sickness and Character
13 How Are You?
20 Chorea or St. Vitus' Dance
27 Hemorrhoids

STATE HOUSE BROADCAST

Sponsored by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays, 12:30 P. M.

Health Subjects of Public Interest discussed by the Division Directors of the Department.

RADIO HEALTH FORUM

Queries from the public are answered under the sponsorship of the Department of Public Health.

Courtesy WEEI. Fridays, 4:50 P. M.

Questions on Health and Prevention of Disease may be sent to Radio Health Forum, State Department of Public Health, State House, Boston.

REPORTS AND NOTICES OF MEETINGS

THE CONFERENCE OF SECRETARIES OF CONSTITUENT STATE MEDICAL ASSOCIATIONS FOR 1932

The Trustees of the American Medical Association invited the secretaries of constituent state medical associations and the editors of the state medical journals to convene in Chicago at the Palmer House, November 18, 1932, the meeting being called to order by Dr. A. R. Mitchell, Chairman of the Board. The delegates were given a cordial welcome.

On motion of Dr. William G. Ricker of Vermont, Dr. Harold P. Camp of Monmouth, Illinois, Secretary of the Illinois State Medical Society, was elected Chairman of the meeting.

The first speaker, Dr. E. H. Cary, President of the American Medical Association, discussed the general problems before the medical profession at the present time. A synopsis of his address follows:

To the Secretaries of the State Medical Associations and the Editors of the Journals:

The most important of our medical gatherings is this convocation of the protectors of the faith—this annual meeting of the custodians of medicine's most valuable agencies, for reaching its devotees in the most remote places in this fair land.

To me, this is the most important session of medical men I have met with during my administration, for medicine must meet important problems arising both within and without the profession, and they cannot be solved without your consideration and determination.

In September there was a meeting at headquarters to prepare for your conference subject matter relating to certain practices which are becoming more prevalent as the economic pressure has become more acute. Contract practice which has been tolerated in some places, stimulated reactions which threatened the harmony and dignity of our practitioners. Contracts made by hospitals insuring the people have grown from offering hospital care alone, to a combination of hospital and medical service which will undoubtedly involve the medical profession in harmful and undignified practices.

These problems which affect the profession necessarily involve the county medical societies and through them, the state society, finally reaching our Judicial Council.

A recent decision of the Judicial Council voiced its disapproval of a contract which existed within my own city, opening the way for county medical societies to stamp out the evils of contract practice. This opinion when rendered, contained among other things, this expression: "A fundamental of medical ethics is that anything which in effect, is opposed to the ultimate good of the people at large is against sound public policy, and therefore unethical."

This far-reaching decision is one which can be used by any county medical society composed of a majority of members who believe in this fundamental expression. If wisely utilized, the majority will be able to clarify and purify any local situation.

I think that this pronouncement of the Judicial Council if properly used along with a workable plan within the county society, inclusive in character, to meet the ever pressing demand for medical care at a cost commensurate with the ability of the underprivileged to pay, will place the medical profession in a more constructive attitude.

There have been experiments proposed in many places with the general idea of having the people budget their medical needs, but it remains for some county units to propound definitely a policy acceptable and workable to solve the problem of the cost of medical care as it relates to the under-

privileged. With such a plan, there ought to be many county societies with a membership sufficiently unified to put it into practice.

The Milwaukee County Medical Society has a most attractive plan to meet a local situation made complex by a socialistic government which has previously adopted certain so-called social reforms where an employed individual with a family may receive free medical care even though he has a salary of sixty dollars per month. To meet such a situation as this would apparently tax the ingenuity of the members of a county society. If the local committee's recommendations are adopted, I hope it will be the result of a collaboration between the Milwaukee County Medical Society and the Wisconsin state organization.

I am convinced that no plan is likely to work until the profession is unified in its desire to meet and solve its problems.

The final report of the Committee on the Costs of Medical Care is about ready for the public. It has been projected into public anticipation by a finished and efficient publicity agent. This report has cost five years of effort and many thousands of dollars and, although I understand it is not like the original baby, it still carries stigmata of a doctorate not medical in origin. There will be a minority report. The public will have to choose the wiser course as outlined by the two reports.

The public should be interested in avoiding the pitfalls of any system which discredits the awards of competitive medicine—those rewards which appeal to the highest type of young people and which magnify the values occurring in a selected personnel, which should compose the profession.

The medical profession sees ahead and is deeply interested in preventing any system from being adopted which threatens the steady advancement of scientific knowledge and progressive development in the art of healing. Unfortunately, medical men themselves are not aware of the fact that experience shows that in all countries in which medical practice has become subservient to extraneous control progressive scientific medicine and the best medical care are utterly incompatible under any such system, whether it be governmental or not.

I agree with Dr. Sargent, and he will recognize some of these ideas: Organized medicine should and I believe will supply a workable plan, safeguarding the best traditions of the profession and the fundamental practices and responsibilities of individualism in the care of the sick. If wisely considerate, such a plan will continue to promote the highest type of medical service in this country. To be successful, a plan should take into consideration the frailties of human nature existing among the devotees of our profession. It should conserve their abilities and opportunities, rewarding them according to their energy, talents and personalities.

When the county society as a unit becomes the chief factor in organizing such a plan, then medicine will be able to surmount what can be considered the catastrophic cost to individuals and families who are unfortunately ill. When this is done, the sacred rights of personal confidence between patient and physician will be preserved, and at the same time, a method will be supplied for meeting the economic necessity of the cost of sickness, which might be entirely beyond the means of the afflicted ones.

I have the hope that out of experience and great desire on the part of the leaders of medicine and the co-workers there will come a solution more in harmony with America's thoughts and aspirations. There is a willingness to coöperate. It is time for action to preserve the best interests of the people through the protection of a great profession from disintegrating forces harmful to all.

It is recognized, however, that this period of depression through which we are now passing has developed new essential differences in the moral concept of competitive practices in medicine, and it has become the duty of our organization to restate some of the purposes and principles which should control the future relation of medical men to the people.

Dr. Follansbee, as chairman of the special committee, will no doubt ask Dr. Pusey to read to you a restatement of certain principles more nearly in line with what should be the professional attitude of today toward our general ethical standards.

The American Medical Association with its various departments is fulfilling the expectations of service to the profession in a very satisfactory manner, far beyond the hopes of the great men who contributed so much to its early development. Few members of our organization appreciate the magnitude of the routine work which goes on day by day at headquarters. The demands upon the working organizations are increasing. Suggestions for further expansion have been made by thoughtful men. For instance, many of our state and county societies, through imperfect organization, fail to develop leadership in constructive medical policies. We have undoubtedly come to the time when the leadership of our organization should be felt by every member.

There is no criticism of the present administration of our organization; the demands upon the existing forces are extreme, while the need for special study of economic and social problems appears urgent. There ought to be a close and continuous coöperation between the parent organization and all constituent units, both for the collection of data essential to a clear understanding of all medical problems and for the distribution of suggestions which may be helpful in solving local problems. I appreciate the fact, however, that any such activities must be welcomed by the state medical associations.

There is plenty of material in the home office to aid progressive movements in the interest of the people and the profession. This material could also be used as a deterrent toward legislation or propaganda not deemed in harmony with our ideals. The county societies would no doubt welcome such

aid. Constructive policies discussed and endorsed by the county units would forestall much of the unwise legislation now confronting the profession. We would have a positive program ready instead of being placed in a negative attitude.

In our Bureau of Medical Economics as well as in our Bureau of Legal Medicine and Legislation excellent work is being done now, and the mass of information which has been accumulated will soon be crystallized into a most helpful group of general policies which when worked out, will advance the knowledge of the economic status of the medical profession throughout the country. I simply raise the question of whether our system of government is being used as advantageously as it might be and whether we reach the smaller units through the state secretaries expeditiously and effectively.

In September, 1932, as members of the Committee on Legislative Activities of the American Medical Association, we were invited by the Commander of the American Legion to go to the meeting at Portland, Oregon. Drs. Wright and Crockett joined me in Portland where we discussed with the members of the Rehabilitation Committee of the American Legion and with General Hines, Administrator of Veterans' Affairs, the question of hospitalization for the veterans of the World War. We were treated with the greatest consideration and found General Hines and Dr. Griffiths equally courteous. We developed the position of each of the forces, and made clear the attitude of the American profession. We left the one important thought—that there can be no peace as long as professional opposition is necessary to protest the present use of national hospitalization. We insisted that the government should stop building hospitals and permit individuals with disabilities of non-service origin who are able to pay for medical care to utilize local physicians and local hospitals.

As I see it, our professional welfare is definitely affected by the future attitude of the government. With us it involves the progress or decline of the art of medicine, and the remote likelihood of the State itself assuming all responsibility for the medical care of its people. If the government persists in this plan, individualism in medicine will be greatly hampered and a multitude of evils, which can be easily understood, will follow in its wake.

The American people are just now realizing that there is a limit to their capacity of paying taxes, and that we as a nation, down to the smallest municipality, are struggling with the most serious depression of modern history. Everyone is becoming aware of the danger to the State which has come in the wake of the tax burden which now exists. Leaders of both political parties, leaders of business, veterans of the World War, and citizens throughout the land recognize the impossibility of continuing a policy toward veterans not injured in the war which has added four hundred and fifty millions of dollars to the overburdened taxpayers, which sum is being paid out by the government. There is no difference of opinion in having the government care for all veterans with service connected disabilities. We are all glad to see the government assume the privilege of caring for them, but we, the doctors, as a great body, approximately 40 per cent of us having served in some capacity in the war — and without physicians no country would dare to go to war—should demand the repeal of the 202-10 amendment, which directly concerns us, and should join all other earnest citizens in a definite effort to bring the budget of the United States government back to a reasonable basis.

It has been emphasized again and again in many places that unless the liberalizing laws regarding veterans which are already passed are repealed, that more hospitals will have to be built and if more liberalizing laws are passed then still more hospitals will have to be built.

Many forces besides the medical profession—informed Americans—recognize this drain upon the government's resources. They would also welcome the help that the medical profession can give toward repealing this destructive legislation. A determined fight on our part will be the turning point. We can destroy the menace confronting our profession and the country, and we should bend every effort through coöperation with every patriotic American who wishes to see his country freed from overburdening taxation.

In summarizing, I would like to stimulate discussion by bringing into the open the questions which are the background of our distress.

1. Should we or should we not advocate as a basic principle the Iowa plan of dealing with indigency?

2. Should we or should we not develop a comprehensive inclusive county medical society plan of creating a budgeting system whereby the catastrophic needs of the people can be met at a cost within the reach of the families who are unfortunately ill?

3. Should we or should we not condemn all hospital insurance schemes for the care of the ill? Or, is it possible to discriminate and say to hospitals that no plan will be recognized as worthy, which includes the physician's services but such hospitals are to be opened to all members of the county medical society, preserving free choice of medical service on the part of the patient.

4. Should we or should we not bring all the pressure we have to bear upon the December Congress to establish a different policy toward the hospitalization of non-service disabled veterans?

5. Should we or should we not demand the repeal of the 202-10 amendment which has opened the government hospitals to all non-service disabled veterans?

6. Should we or should we not strive both to limit the number of new medical graduates and to develop the field of immunization and preventive medicine for private practitioners?

7. Should we or should we not fight with all the strength of the body medical in its individual and collective entity, the trend to state medicine, in all

of its ramifications, which threatens to destroy our professional integrity and material remuneration and to retard the progress of our science?

I raise these questions so that through the wisdom of this body we may be able to crystallize our position and concertedly get into action.

The medical profession treasures its ancient home of Hellenic origin; its straight lines are redolent of beauty; none of us complains of its architecture but, as time goes by, like all homes it needs repolishing. Its superstructure stands upon a foundation which time has scarcely marred. The builders of today, like the builders of yesterday, are trying to keep this foundation sound and secure. The portals of this home have always been flung ajar to extend gracious hospitality to all who need its beneficent bounty. We are proud to claim it our habitat, and we should protect its beauty, culture and integrity with our life blood.

The next speaker, Dr. William Allen Pusey, Ex-President of the American Medical Association, discussed the principles and policies of medicine as set forth in the following synopsis:

TWELVE POINTS IN THE PRINCIPLES AND POLICIES OF MEDICINE

PRINCIPLES

1—Medicine is the trustee of society in the care of the sick and injured; its policies must always be governed by this fundamental fact.

2—The good of society must be the sole aim of its public policies and the good of the patient the first consideration in the relations between physicians and patients.

3—Medicine's first responsibility must be to see that its services are available to all men.

4—The public interest demands the most competent medical profession possible. Medicine must be an attractive profession to compete successfully with other professions for the ablest young men.

5—In the sense that every calling from which a living must be gained is a business, medicine is a business; it must accept the competitive conditions of practical life but, as a profession of high ideals, it must seek to prevent selfish commercialism.

6—Experience has shown that the vast majority of disease conditions afflicting man can be most satisfactorily and economically diagnosed and treated by a competent individual general practitioner.

RESPONSIBILITIES

7—The services of medicine include (a) the practice of medicine; (b) the promotion of preventive medicine and the public health; (c) the fostering of research and the increase of knowledge.

8—Medicine's chief concern must be for the individual physician; the service rendered by individual physicians in the aggregate constitutes the great bulk of medical service. The quality of service which is given depends on the competency of the individual physicians who give it.

RIGHTS

9—The medical profession asks for its practitioners: Freedom of opportunity to develop to the limit of their individual capacities.

10—It asks a career of independence under conditions of free and dignified competition.

11—It asks remuneration sufficient for reasonable comfort for the individual and for his family.

12—In its ideals of independence, medicine has a right to control its own affairs. Its history of capacity and altruism justifies this claim.

The last paper of the morning session was presented by Dr. George Edward Follansbee, Chairman of the Judicial Council of the American Medical Association.* At the conclusion of Dr. Follansbee's address, luncheon was served.

An address by Dr. Dean Lewis, President-Elect of the American Medical Association, followed the luncheon. Dr. Lewis spoke especially of some of the features of medical education and the general problems before the profession. The paper by Dr. R. G. Leland, Director, Bureau of Medical Economics of the American Medical Association, continued the subject of contract practice giving a statistical report of the number of cases and the places where this custom prevails. Contract practice in West Virginia was discussed by Dr. D. A. MacGregor of Wheeling, West Virginia.

OUTLINE OF THE FORMS OF MEDICAL AND HOSPITAL CONTRACT PRACTICE NOW IN VOGUE IN WEST VIRGINIA

I. Industry checks off for medical care of employee and family.
   (a) Physician receives entire check-off in some instances.
   (b) Physician is on a salary in other instances.
      (1) Balance of check-off is retained by employer, or
      (2) balance of check-off goes to another physician (or other person) holding master contract.
   (c) Industrial accidents are handled through the State Compensation Department.

II. Industry checks off for both medical care and hospital attention for employee and family (including industrial accidents); so-called "list" practice.
   (a) Physician located at the place of industry (usually a mine) receives a specified check-off, or a salary with the industry retaining the surplus from the check-off.
   (b) The hospital having the contract with the industry receives a separate check-off.
   (c) The industry is relieved of the expense of medical and hospital care for industrial accidents.
   (d) The employee does not have the protection or assistance of the State Compensation De-

*No abstract of this paper was distributed. Reference to it appears later in this report.

partment in case he feels that his treatment has been inadequate at the list hospital.

III. Industry checks off for medical and hospital care of employees for industrial accidents only.

(a) Employee, and family are not protected in any manner in regard to ordinary accidents or illness.

(b) Only one coal company in the state is known to be practicing this method at the present time.

IV. A private hospital with a closed staff offers to individuals or groups a contract calling for both medical and hospital attention in consideration of regular monthly payments to the hospital.

(a) Contracts are solicited by agents of the hospital.

(b) Contracts are offered to individuals who are regular patients of physicians not on the staff of the hospital.

(c) Contracts do not cover venereal diseases, injuries due to lawlessness and contagious diseases.

V. The Citizens' Hospital Service, Inc., has been established "so as to provide hospital, and proper medical and surgical care for the sick and injured, who at the time, are members in good standing of the corporation".

(a) The fund is designed primarily to take care of acute conditions, with the exception of those cases coming under state compensation, venereal infections or their sequelae, and cases arising from acts of lawlessness and normal obstetrics.

(b) Chronic and incurable cases are limited to one month hospitalization and twenty-five dollars medical fee.

(c) The patient has free choice as to the selection of the hospital and his physician or surgeon.

(d) This fund is administered by laymen and twenty-five per cent of the funds collected are allocated to "operating expenses".

VI. Employees Group Insurance Plan conducted by the Union Carbon and Carbide Corporation.

(a) Employees carry a group life insurance policy with the Metropolitan Life Insurance Company.

(b) All dividends from this group policy are placed in a Special Fund managed by trustees elected by the employees.

(c) An employee is permitted to borrow from this fund to pay for medical and hospital care.

(d) He is charged four per cent interest and is required to pay back the amount borrowed through pay-roll deductions in fifty-two weeks.

(e) There is absolutely free choice in the selection of doctor and hospital.

DR. D. A. MACGREGOR.

These papers brought out a general discussion with the expression of definite views relating to the subjects under consideration. The concentration of interest appeared to be on contract practice which Dr. Follansbee described as the "Octopus of Medicine" and which he felt had very serious objections in that it lowers standards of practice, introduces cut-throat competition, destroys initiative and leads to dangers which may be impossible for medicine to overcome. Even with these very definite objections Dr. Follansbee gave instances of contract practice which were ethical and especially applicable to certain conditions, but stated that these constituted so small a proportion of the more serious phases of contract practice that it should be very carefully studied, its bad features overcome and its dangers more fully recognized by the profession. He explained that, although the parts of the country where this practice prevails may be comparatively segregated, if it is not controlled it will soon pervade the entire country. He further stated that it threatens those places where, at the present time, it has not been employed.

The discussion became more or less general with very definite interest in dealing with the dangers pointed out by speakers, but unfortunately very little in the way of constructive remedies other than through awakened understanding of the dangers incident to this form of practice.

On Saturday the first paper on the program was presented by Dr. J. M. Robb of Detroit on the proper attitude of physicians toward insurance plans. Dr. Robb very consistently brought forward objections to most of the plans which have been devised in this country and abroad, pointing out the difficulties and dangers incident to compulsory and voluntary insurance, but with the hope that further study of the whole question would bring about interpretation of the possibility of forms of insurance which could be approved by the medical profession if inaugurated and controlled by the state societies.

The paper by Dr. E. G. Waters of Jersey City, New Jersey, on the certification of specialists by the State Medical Association, an outline of which is presented, was also of great interest and called for considerable discussion.

PLAN FOR ACCREDITING SPECIALISTS AND CONTROLLING SPECIALISM BY THE STATE MEDICAL SOCIETY

Proposed Adaptation of the Waters' Plan Prepared by President Hagerty and Dr. Waters

Realizing the unsatisfactory conditions growing out of "specialism" and the abuses that have resulted from the improper assumption and use of the title "Specialist," the Medical Society of New Jersey has decided to establish a plan under which it can serve as sponsor to the public for such of its members as their colleagues recognize as being properly qualified and competent to practice as specialists, and are deemed worthy of this Society's endorsement.

The plan herewith proposed requires no new or

additional legislation; in fact, avoidance of legislative action and keeping the control of medical affairs in the hands of the organized profession are among the merits of this proposal. Neither does the plan interfere, in any way, with the *legal rights* of any regularly licensed physician, surgeon, specialist, or general practitioner. It will, however, permit those members who are, or may become, properly qualified in certain branches of medical practice to secure the approval and endorsement of the society, and to let the facts be made known to the public through proper medical channels.

PLAN

State Society Committee. For the purpose of putting this plan into effect and of continuing its application and enforcement during the next 3 to 5 years, a special committee shall be appointed, to be known as the Committee on Credentials of Specialists, to be composed of the President and Secretary, and the Chairman of the Welfare Committee, Chairman of the Board of Trustees, and First Vice-President. Said committee shall be empowered to call into conference from time to time, as may be desirable, one or more specialists from the State Society's list, to serve the committee in an advisory capacity while dealing with the scientific credentials of the candidate for recognition. This special committee shall have, further, authority to pass upon all such personal attributes, and set up such educational requirements as may be deemed necessary. The presence of 5 members shall be required at meetings for consideration of candidates. In the event that any member of the committee is removed by death, or resignation, the Board of Trustees shall fill the vacancy thus created.

County Society Committee. Each component county medical society shall set up a similar Committee on Special Credentials for a period of 3 to 5 years, composed of its President and Secretary and 3 other members to be elected by the county society.

METHOD OF PROCEDURE

In County Society. Any member of a component county medical society, desiring recognition and certification of himself by the Medical Society of New Jersey, will make such application to the Secretary of his county society, on blanks to be provided by the State Society, and present therewith such documents and evidence of whatsoever sort he may think entitles him to listing as a specialist in his chosen line of medical practice.

The said county society Secretary will then present the application and all of its supporting testimony to the County Society Committee on Special Credentials; and, if and when that committee—after careful consideration of the material submitted, and such further investigation as the committee may see fit to make concerning the applicant's moral character, professional conduct, educational background (general and medical), experience in the general practice of medicine, and general fitness to enter or remain in the field of Specialism—shall have given its approval to the application, the said Secretary shall at once forward that application, with the committee's endorsement attached (together with a copy or copies of all documents and records of information, upon which the county committee based its decision), to the Secretary of the State Society. Four members of the county committee shall constitute a quorum.

In State Society. Upon receipt of such an application, the State Society Secretary shall present it (and he may attach thereto any additional information, suggestions or recommendations believed by him to be germane to the question) to the State Socety's Committee on Credentials of Specialists, and, after due consideration of all information at hand or readily available, that committee shall determine whether the candidate is worthy of recognition, as a Specialist, by the State Society, and shall forward its recommendation to the Secretary of the State Society, at least 30 days prior to the next regular Annual Meeting.

In the event that an applicant for recognition as a specialist is rejected by the county society committee; or, if that committee has not rendered a decision as to approval or rejection within a period of 1 year; and the applicant feels that he has not been treated fairly, he may appeal to the State Society, through its Secretary, and request that his application and its supporting evidence be taken from the county society and considered by the corresponding State Society Committee.

Decisions of the State Society Committee upon such appeals and also upon adverse decisions of its own, when dealing with applications endorsed by the County Committee, shall be final, unless otherwise determined by the Trustees or House of Delegates of the State Society.

The deliberations and findings of the State and County Committees shall be the property of the State Society Committee.

QUALIFICATIONS

(1) A candidate must be known to and recognized by his professional associates as an honest, conscientious and ethical physician.

(2) Fellowship in the American College of Surgeons, or Fellowship in the American College of Physicians; or a diploma from one of the National Examining Boards — ophthalmology, otolaryngology, obstetrics and gynecology; membership in the American College of Radiology, or the Radiologic Society of North America; or membership in the American Psychiatric Society; will be considered a favorable recommendation.

(3) Members of the Medical Society of New Jersey holding appointments on a hospital service, in a special branch of medicine or surgery or any of the recognized specialties, whose service is sufficiently active to afford attainment of a high degree of proficiency; and the duration of whose appointment has been at least 5 years; will be deemed worthy of consideration.

(4) Those who may later receive, from recognized colleges or other teaching institutions, cer-

tificates showing completion of postgraduate courses of instruction leading to the degree of "Master" in any branch of medicine or surgery.

(5) Evidence of continuous, active, successive practice during at least 10 years, marked by study, travel, active membership in medical societies, and proof of special ability in their chosen fields of practice.

CERTIFICATION

(1) The certification as specialist in any given branch of medicine or surgery shall be awarded at the Annual Meeting of the State Medical Society, in such manner as may hereafter be determined by the State Society Committee on Credentials and the Board of Trustees.

(2) A suitably engrossed *Certificate*, carrying the seal of the State Medical Society, and subscribed to by the State Society Committee on Credentials, shall be issued to all approved applicants.

(3) The State Society, upon the advice and request of the State Society Committee on Credentials, may distribute the lists of *Approved Applicants* and *Certified Specialists* in such places and manner as may seem desirable for the effectiveness of this plan.

(4) To defray the cost of certification and certificate, a charge of $25 shall be made, payable before the certificate of qualification as a specialist is issued.

The State Society Committee reserves the right to revoke any certificate issued, upon proof being shown that fraud or misrepresentation was used in obtaining certification.

.....

.....1932

I hereby make application for endorsement of the Medical Society of New Jersey as a Specialist in .....

Place of birth.....Date of birth.....

Preliminary education .....

.....

Academic Degrees .....

Medical education .....

Hospital internship.....

Hospital connections and length of service .....

.....

Post-Graduate study .....

Honorary Degrees .....

Member of .....Associations.....

Do you subscribe to the Fellowship Oath of the American College of Surgeons?

Signed

Taken altogether the meeting created much interest and the delegates seemed appreciative of the courtesies extended by the Trustees of the American Medical Association. It was explained that although this was a meeting of the secretaries and editors it had seemed advisable under the present conditions to turn the attention of the physicians into the channels which were depicted in the program, but that the subsequent sessions would be more definitely under the control of the secretaries of the state medical associations.

LAWRENCE CANCER CLINIC

Lawrence, Massachusetts,
November 22, 1932.

To the Physicians of the North Half of Essex County:

The regular Lawrence Cancer Clinic, to be held at Lawrence General Hospital, 1 Garden Street, Lawrence, on Tuesday, December 6, at 10 A. M., will be a Demonstration Clinic with Channing C. Simmons, M.D., of Boston, Surgeon to Collis P. Huntington Memorial Hospital, Boston, present as consultant. You are invited to accompany any of your patients whom you desire shall have this service, or to send them with a note, and a report will be returned to you. This service is gratis. Your attendance at the Clinic is always welcome.

Committee

ROY V. BAKETEL, M.D.,
CHAS. J. BURGESS, M.D.,
FRED'K D. MCALLISTER, M.D.,
JOHN J. MCARDLE, M.D.,
HARRY H. NEVERS, M.D.,
THOS. V. UNIAC, M.D.,
J. FORREST BURNHAM, M.D.,
Chairman.

NEW ENGLAND PHYSICAL THERAPY SOCIETY

SCHEDULE 1932-33

Meetings will be held at the Boston Square and Compass Club, 448 Beacon Street, Boston, Mass., on the dates specified at 8:00 P. M. unless otherwise stated on the monthly program.

PRELIMINARY PROGRAM

December 14*, 1932—Chairman: Charles W. McClure, M.D. Subject: Gastric Ulcer.

January 19, 1933—Chairman: William G. Curtis, M.D. Subject: Dermatology.

February 16, 1933—Chairman: Edward H. Trowbridge, M.D. Subject: Electrosurgery.

March 15, 1933—Chairman: William D. McFee, M.D. Subject: Diseases of the Chest.

April 19, 1933—Chairman: DeWitt G. Wilcox, M.D. Subject: Gynecology.

May 17, 1933—Chairman: Franklin P. Lowry, M.D. Subject: Arthritis.

*Date changed by vote of the Society.

MASSACHUSETTS SOCIETY OF EXAMINING PHYSICIANS

DINNER AND MEETING

The Copley-Plaza
Wednesday, December 7, 1932
Dinner at 6:30 P. M. $2.50 per plate

COMMUNICATIONS

I. Dr. P. F. Butler, Roentgenologist, Boston City Hospital.
Subject: Industrial Injuries: X-ray Evidence

Disclosing Conditions Which May Be Overlooked on Clinical Examination.

II. Charles F. Horan, Esq., Arrow Mutual Liability Insurance Company.

Subject: The Increased Cost of Compensation Insurance and the Medical Profession.

Discussion of these papers will be opened by Dr. J. W. Sever.

This will be an unusually interesting meeting, and all members are urged to come.

WILLIAM EDWARD BROWNE, M.D., *President.*
WILLIAM PEARCE COUES, M.D., *Secretary.*

THE NEW ENGLAND HEART ASSOCIATION

PROGRAM FOR 1932-1933

The first meeting of the Clinical Course given by the New England Heart Association will be held Wednesday, December 7, 1932, at four-thirty P. M., in the John Ware Hall at the Boston Medical Library. The subject will be:

Acute and Chronic Pericarditis

1. Medical Aspects. Dr. S. A. Levine.
2. Surgical Aspects. Dr. E. D. Churchill.
3. Pathological Aspects. Dr. Charles F. Branch.
4. Discussion. Dr. Roger I. Lee.

Tentative subjects for the other meetings are as follows:

FEBRUARY 8, 1933 — Subject: Peripheral Vascular Disease exclusive of Raynaud's Disease.

1. Medical Aspects. Dr. Soma Weiss.
2. Surgical Aspects. Dr. Arthur W. Allen.
3. Pathological Aspects. Dr. Tracy B. Mallory.
4. Discussion. Dr. J. C. White and Dr. Reginald H. Smithwick.

APRIL 5, 1933—Subject: Pulmonary Vascular Disease.

1. Roentgen Study of the Pulmonary Circulation in Health and Disease. Dr. Hugo Rösler.
2. Pathological and Clinical Aspects of the Pulmonary Circulation. Dr. Paul D. White and Dr. Oscar Brenner.
3. Discussion. Dr. H. B. Sprague.

During the last week in May (May 22 to May 31) four lectures will be given by Dr. Ronald T. Grant of the Clinical Research Department of the University College Hospital Medical School, London (associated with Sir Thomas Lewis), on the subject "Endocarditis and Coronary Disease."

All who are interested are invited to attend.

HOWARD B. SPRAGUE, M.D.,
Chairman of the Program Committee.

MASSACHUSETTS GENERAL HOSPITAL

A Clinical Meeting of the Staff of the Massachusetts General Hospital will be held in the Moseley Memorial Building on Thursday, December 8, 1932, at 8:15 P. M.

PROGRAM

1. Presentation of Cases.
2. The Operability of Prostatic Disease. Dr. George G. Smith.
3. Hydronephrosis. Dr. Fletcher H. Colby.
4. Perinephritic Abscess. Dr. Channing S. Swan.
5. Some Preliminary Observations on Prostatic Resection. Dr. J. Dellinger Barney.

Physicians, medical students, and nurses are cordially invited.

COMMITTEE ON HOSPITAL MEETINGS.

NEW ENGLAND PEDIATRIC SOCIETY

A MEETING TO DISCUSS ALLERGY AS MANIFESTED IN INFANCY AND CHILDHOOD, DECEMBER 9, 1932

Afternoon Session

Children's Hospital Amphitheatre, 4:00 P. M.

1. Presentation of Patient (Surgical)—Dr. William B. Ladd.
2. Presentation of Patient (Orthopedic)—Dr. Frank Ober.
3. Classification of Blood Cells (Colored Lantern Slides)—Dr. Louis K. Diamond.
4. Diphtheria Toxoid and Toxin-Antitoxin Mixture—Dr. Elliott S. Robinson.
5. Presentation of Patient (Infants)—Dr. Edwin T. Wyman.
6. Presentation of Patient (Medical)—Dr. Charles McKhann.

Boston Medical Library, 8:00 P. M.

(Election of Officers will take place at this meeting)

1. The Allergic Child—Dr. Bret Ratner, New York.
2. Discussion by Dr. Hans Zinsser and Dr. Harold Stuart.
3. Refreshments.

Physicians and Medical Students invited.

GERALD HOEFFEL, *Secretary.*

WILLIAM HARVEY SOCIETY

The next meeting of the William Harvey Society will be held at the Beth Israel Hospital on Friday, December 9, 1932, at 8:00 P. M.

Speaker: Dr. Samuel Joseph Kopetzky, Professor of Otology, New York Polyclinic Medical School.

Subject: "Problems Concerned in Otitic Meningitis." Illustrated with lantern slides and roentgenograms.

Chairman: Dr. Harry James Inglis, Professor of Oto-laryngology, Tufts College Medical School.

GREATER BOSTON MEDICAL SOCIETY

A joint meeting of the Greater Boston Medical Society and the Beth Israel Hospital will be held on Tuesday, December 6, at 8:15 P. M., at the Beth Israel Hospital. Program: Products of a Thyroid Clinic, James H. Means, M.D., Massachusetts General Hospital. Discussion: Samuel L. Gargill, M.D., Mark Falcon-Lesses, M.D., David D. Berlin, M.D.

BERNARD I. GOLDBERG, M.D., *Secretary.*
483 Beacon Street, Boston.

SOMERVILLE MEDICAL SOCIETY

The Somerville Medical Society at its meeting in November voted to join the National Economy League as a society.

Dr. Winfred Overholser of the Department of Mental Diseases of the Commonwealth gave a very interesting talk on the Activities and Aims of the Department.

The forty-third annual dinner and election of officers of the society will be held Thursday evening, December 8, at the Arlmont Country Club.

CRAWFORD K. SWEELEY, M.D., *Secretary.*

SOCIETY MEETINGS CONGRESSES AND CONFERENCES

December 2—American Society for the Study of Arthritis. See page 960, issue of November 24.
December 6—Greater Boston Medical Society. See page 1011.
December 6—Lawrence Cancer Clinic. See page 1010.
December 7—Worcester Cancer Clinic. See page 1003.
December 7—Massachusetts Society of Examining Physicians. See page 1010.
December 7, February 8, and April 5—The New England Heart Association. See page 1011.
December 7—American Board of Obstetrics and Gynecology. Announcement of Coming Examinations. See notice on page 557, issue of September 22.
December 8—Clinics in Medicine at Peter Bent Brigham Hospital. See page 1003.
December 8—Somerville Medical Society. See notice above.
December 8—Massachusetts General Hospital. See page 1011.
December 9—William Harvey Society. See page 1011.
December 9—New England Pediatric Society. See page 1011.
December 12—Boston Orthopaedic Club. See page 812, issue of November 3.
December 14—New England Dermatological Society. Clinical Meeting, Boston City Hospital at 3 P. M.
December 14 - May 17—New England Physical Therapy Society. See page 1010.
February 6-10—The American College of Physicians. See page 765, issue of October 27.
February 17 and 18—The New England Hospital Association. See notice on page 911, issue of November 17.

DISTRICT MEDICAL SOCIETIES

ESSEX NORTH DISTRICT MEDICAL SOCIETY

January 4—Wednesday, Semi-Annual Meeting. Program to be announced.

May 3—Wednesday, Annual Meeting. Program to be announced.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

Tentative Program
1932-1933

Wednesday, December 7, 1932—Beverly Hospital. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. Robert Greenough. Subject: Postgraduate Instruction.

Wednesday, January 4, 1933—Danvers State Hospital, Hathorne. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. A. Warren Stearns, Dean of Tufts College Medical School.

Wednesday, February 1, 1933—Council Meeting, Boston.

Wednesday, March 8, 1933—Lynn Hospital. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. Soma Weiss, Boston City Hospital. Subject: Arterial Hypertension.

Wednesday, April 5, 1933—Essex Sanatorium, Middleton. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. Wilson G. Smillie, Professor of Public Health Administration, School of Public Health, Harvard University. Subject: Common Colds.

Thursday, May 4, 1933—Censors' Meeting, Salem Hospital, 3:30 P. M.

Tuesday, May 9, 1933—Annual Meeting. Salem Country Club, Forest Street, Peabody. Golf in afternoon; greens fee $2.00. Dinner at 7 P. M. Speaker: Dr. George Burgess Magrath. Subject to be announced later. Ladies invited.

R. E. STONE, M.D., Secretary.

FRANKLIN DISTRICT MEDICAL SOCIETY

Meetings of the Franklin District Medical Society will be held at the Weldon in Greenfield on the second Tuesday of January, March and May.

CHARLES MOLINE, Secretary.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

The program of the Middlesex East District Medical Society for the coming year is as follows:

January 11 at Wakefield.
March 15 at Melrose.
May, at the Meadowbrook Club, Reading.

ALLAN R. CUNNINGHAM, Secretary.

NORFOLK DISTRICT MEDICAL SOCIETY

January 31, 1933—Roxbury Masonic Temple, 8 P. M. Subject: "Stomach Surgery"—Motion pictures. Dr. William R. Morrison.

February 28, 1933—Time and place to be announced. "The Diagnosis and Treatment of Anemia," by Dr. William P. Murphy.

March 28, 1933—Time, place and subject to be announced. Speaker will be Dr. J. P. O'Hare.

May—Annual Meeting. Time, place and subject to be announced.

FRANK S. CRUICKSHANK, M.D., Secretary.
1695 Beacon Street, Brookline.

SUFFOLK DISTRICT MEDICAL SOCIETY

Wednesdays at 8:15 P. M.

January 25, 1933—General Meeting in association with the Boston Medical Library at the Boston Medical Library. Titles and speakers to be announced later.

March 29, 1933—Clinical Program, Massachusetts General Hospital.

April 26, 1933—Annual Meeting. Election of Officers. Scientific Program—Titles and speakers to be announced later.

The Medical Profession is cordially invited to attend all of these meetings.

WILLIAM H. ROBEY, M.D., President,
LELAND S. McKITTRICK, M.D., Secretary,
HILBERT F. DAY, M.D., Boston Medical Library.

WORCESTER DISTRICT MEDICAL SOCIETY

Schedule of meetings for 1932-1933:

Wednesday, December 14—Meeting at the Worcester Chamber of Commerce Auditorium. Paper by Dr. Joseph Meigs of Boston, entitled "Uterine Bleeding."

Wednesday, January 11—Dinner and meeting at the Worcester City Hospital. Paper by Dr. Morris Fishbein, Editor of the Journal of the American Medical Association.

Wednesday, February 8—Dinner and scientific meeting at the Worcester State Hospital. Program to be announced later.

Wednesday, March 8—Dinner and scientific program at the Memorial Hospital, Worcester. Program to be announced later.

Wednesday, April 12—Dinner and scientific meeting at the Rutland State Hospital. Scientific program to be announced later.

Wednesday, May 10—The Annual Meeting. Place and program to be announced later.

ERWIN C. MILLER, Secretary.

BOOKS RECEIVED FOR REVIEW

The Curative Value of Light by Edgar Mayer. Published by D. Appleton & Company. 175 Pages. Price $1.50.

Treatment of Syphilis by Jay F. Schamberg and Carroll S. Wright. Published by D. Appleton & Company. 658 Pages. Price $8.00.

Epidemiology—Historical and Experimental. The Herter Lectures for 1931 by Major Greenwood. Published by The Johns Hopkins Press and Humphrey Milford, Oxford University Press. 80 Pages. Price $1.50.

Laboratory Service and the General Practitioner by Arnold Renshaw. Published by Humphrey Milford, Oxford University Press. 267 Pages. Price $2.50.

Hospitals and Child Health. A Publication of the White House Conference. Published by the Century Co. 279 Pages. Price $2.50.

A New Physiology of Sensation by W. Burridge. Published by Humphrey Milford, Oxford University Press. 70 Pages. Price $1.50.